=> d his full

(FILE 'HOME' ENTERED AT 21:50:20 ON 16 JUN 2006)

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, ANTE, AQUALINE, AQUASCI, BIOENG, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CAPLUS, CEABA-VTB, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DISSABS, DRUGB, DRUGMONOG2, DRUGU, EMBAL, EMBASE, ...' ENTERED AT 21:50:50 ON 16 JUN 2006

SEA LYSIN?(S)(PRODUC? OR SYNTH?)(S)BACTER?

1	FILE ADISINSIGHT
133	FILE AGRICOLA
5	FILE ANABSTR
2	FILE ANTE
8	FILE AQUALINE
56	FILE AQUASCI
212	FILE BIOENG
249	FILE BIOSIS
824	FILE BIOTECHABS
824	FILE BIOTECHDS
494	FILE BIOTECHNO
359	FILE CABA
479	FILE CAPLUS
78	FILE CEABA-VTB
7	FILE CIN
1	FILE CROPB
3	FILE CROPU
6	FILE DDFB
27	FILE DDFU
10746	FILE DGENE
84	FILE DISSABS
6	FILE DRUGB
59	FILE DRUGU
11	FILE EMBAL
106	FILE EMBASE
495	FILE ESBIOBASE
125	FILE FROSTI
204	FILE FSTA
408	FILE GENBANK
3	FILE HEALSAFE
392	FILE IFIPAT
2	FILE IMSRESEARCH
81	FILE JICST-EPLUS
7	FILE KOSMET
576	FILE LIFESCI
136	FILE MEDLINE
10	FILE NTIS
11	FILE OCEAN
293	FILE PASCAL
15	FILE PCTGEN
1	FILE PHARMAML
7	FILE PHIN
61	FILE PROMT
13	FILE RDISCLOSURE
133	FILE SCISEARCH
99	FILE TOXCENTER
3167	FILE USPATFULL
294	FILE USPAT2
9	FILE VETU
16	FILE WATER
577	FILE WPIDS
8	FILE WPIFV
577	FILE WPINDEX
3	FILE IPA
1	FILE NAPRALERT
22	FILE NLDB

L1 QUE LYSIN?(S)(PRODUC? OR SYNTH?)(S) BACTER?

D RANK

FILE 'USPATFULL, BIOTECHDS, WPIDS, LIFESCI, ESBIOBASE, BIOTECHNO, CAPLUS, IFIPAT, USPAT2' ENTERED AT 21:55:37 ON 16 JUN 2006

L2 7298 SEA LYSIN?(S)(PRODUC? OR SYNTH?)(S) BACTER?

L3 11640 SEA LYSI?(S)(PRODUC? OR SYNTHE?)(S)(COLI? OR ESCHERI? OR BREVIB? OR CORY? OR GLUTAMICU? OR ACTINO? OR ARTHRO?)

L4 31 SEA L3(S)(PIMEL?)

L5 22 DUP REM L4 (9 DUPLICATES REMOVED)

D TI L5 1-22

D IBIB ABS L5 6-8, 10, 13, 15-21

D KWIC L5 6-8, 10, 13, 15-21

L6 424 SEA L3(S)(PIMEL? OR DIAMINOPIMEL?)

L7 221 SEA L6(S)(ANAL? OR INHIBI?)

L8 161 DUP REM L7 (60 DUPLICATES REMOVED)

L9 113 SEA L8(S)(GENE? OR DNA? OR POLYNUCL? OR MRNA? OR CDNA?)

Connecting via Winsock to STN

Welcome to STN International! Enter x:x

LOGINID:ssspta1652dmr

PASSWORD:
TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * * * * * * Welcome to STN International * * * * * * * * * *

NEWS	1		Web Page URLs for STN Seminar Schedule - N. America
NEWS	2		"Ask CAS" for self-help around the clock
NEWS	3	JAN 17	Pre-1988 INPI data added to MARPAT
NEWS	4	FEB 21	STN AnaVist, Version 1.1, lets you share your STN AnaVist visualization results
NEWS	5	FEB 22	The IPC thesaurus added to additional patent databases on STN
NEWS	6	FEB 22	Updates in EPFULL; IPC 8 enhancements added
NEWS	7	FEB 27	New STN AnaVist pricing effective March 1, 2006
NEWS	8	MAR 03	Updates in PATDPA; addition of IPC 8 data without attributes
NEWS	9	MAR 22	EMBASE is now updated on a daily basis
NEWS	10	APR 03	New IPC 8 fields and IPC thesaurus added to PATDPAFULL
NEWS	11	APR 03	Bibliographic data updates resume; new IPC 8 fields and IPC thesaurus added in PCTFULL
NEWS	12	APR 04	STN AnaVist $500 visualization usage credit offered
NEWS	13	APR 12	LINSPEC, learning database for INSPEC, reloaded and enhanced
NEWS	14	APR 12	Improved structure highlighting in FQHIT and QHIT display in MARPAT
NEWS	15	APR 12	Derwent World Patents Index to be reloaded and enhanced during second quarter; strategies may be affected
NEWS	16	MAY 10	CA/CAplus enhanced with 1900-1906 U.S. patent records
NEWS	17	MAY 11	KOREAPAT updates resume
NEWS	18	MAY 19	Derwent World Patents Index to be reloaded and enhanced
NEWS	19	MAY 30	IPC 8 Rolled-up Core codes added to CA/CAplus and USPATFULL/USPAT2
NEWS	20	MAY 30	The F-Term thesaurus is now available in CA/CAplus
NEWS	21	JUN 02	The first reclassification of IPC codes now complete in INPADOC

NEWS EXPRESS JUNE 16 CURRENT WINDOWS VERSION IS V8.01b, CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP), AND CURRENT DISCOVER FILE IS DATED 23 MAY 2006.

NEWS HOURS	STN Operating Hours Plus Help Desk Availability
NEWS LOGIN	Welcome Banner and News Items
NEWS IPC8	For general information regarding STN implementation of IPC 8
NEWS X25	X.25 communication option no longer available after June 2006

Enter NEWS followed by the item number or name to see news on that specific topic.

All use of STN is subject to the provisions of the STN Customer agreement. Please note that this agreement limits use to scientific research. Use for software development or design or implementation of commercial gateways or other similar uses is prohibited and may result in loss of user privileges and other penalties.

* * * * * * * * * * * * * * * STN Columbus * * * * * * * * * * * * * * * *

FILE 'HOME' ENTERED AT 21:50:20 ON 16 JUN 2006

```
=> index bioscience medicine
FILE 'DRUGMONOG' ACCESS NOT AUTHORIZED
COST IN U.S. DOLLARS                                    SINCE FILE      TOTAL
                                                           ENTRY    SESSION
FULL ESTIMATED COST                                         0.21       0.21

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, ANTE, AQUALINE,
       AQUASCI, BIOENG, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CAPLUS,
       CEABA-VTB, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DISSABS, DRUGB,
       DRUGMONOG2, DRUGU, EMBAL, EMBASE, ...' ENTERED AT 21:50:50 ON 16 JUN 2006

71 FILES IN THE FILE LIST IN STNINDEX

Enter SET DETAIL ON to see search term postings or to view
search error messages that display as 0* with SET DETAIL OFF.

=> s lysin?(s)(produc? or synth?)(s)bacter?
          1   FILE ADISINSIGHT
        133   FILE AGRICOLA
          5   FILE ANABSTR
          2   FILE ANTE
          8   FILE AQUALINE
         56   FILE AQUASCI
        212   FILE BIOENG
        249   FILE BIOSIS
        824   FILE BIOTECHABS
        824   FILE BIOTECHDS
  12 FILES SEARCHED...
        494   FILE BIOTECHNO
        359   FILE CABA
        479   FILE CAPLUS
         78   FILE CEABA-VTB
          7   FILE CIN
          1   FILE CROPB
          3   FILE CROPU
          6   FILE DDFB
         27   FILE DDFU
  22 FILES SEARCHED...
      10746   FILE DGENE
  23 FILES SEARCHED...
         84   FILE DISSABS
          6   FILE DRUGB
         59   FILE DRUGU
         11   FILE EMBAL
        106   FILE EMBASE
        495   FILE ESBIOBASE
        125   FILE FROSTI
        204   FILE FSTA
  34 FILES SEARCHED...
        408   FILE GENBANK
          3   FILE HEALSAFE
        392   FILE IFIPAT
          2   FILE IMSRESEARCH
         81   FILE JICST-EPLUS
          7   FILE KOSMET
        576   FILE LIFESCI
        136   FILE MEDLINE
         10   FILE NTIS
         11   FILE OCEAN
        293   FILE PASCAL
  48 FILES SEARCHED...
         15   FILE PCTGEN
          1   FILE PHARMAML
          7   FILE PHIN
```

```
        61   FILE PROMT
        13   FILE RDISCLOSURE
       133   FILE SCISEARCH
        99   FILE TOXCENTER
      3167   FILE USPATFULL
       294   FILE USPAT2
  62 FILES SEARCHED...
         9   FILE VETU
        16   FILE WATER
       577   FILE WPIDS
  66 FILES SEARCHED...
         8   FILE WPIFV
       577   FILE WPINDEX
         3   FILE IPA
         1   FILE NAPRALERT
        22   FILE NLDB

  56 FILES HAVE ONE OR MORE ANSWERS,   71 FILES SEARCHED IN STNINDEX

L1   QUE LYSIN?(S)(PRODUC? OR SYNTH?)(S) BACTER?

=> d rank
F1       10746   DGENE
F2        3167   USPATFULL
F3         824   BIOTECHABS
F4         824   BIOTECHDS
F5         577   WPIDS
F6         577   WPINDEX
F7         576   LIFESCI
F8         495   ESBIOBASE
F9         494   BIOTECHNO
F10        479   CAPLUS
F11        408   GENBANK
F12        392   IFIPAT
F13        359   CABA
F14        294   USPAT2
F15        293   PASCAL
F16        249   BIOSIS
F17        212   BIOENG
F18        204   FSTA
F19        136   MEDLINE
F20        133   AGRICOLA
F21        133   SCISEARCH
F22        125   FROSTI
F23        106   EMBASE
F24         99   TOXCENTER
F25         84   DISSABS
F26         81   JICST-EPLUS
F27         78   CEABA-VTB
F28         61   PROMT
F29         59   DRUGU
F30         56   AQUASCI
F31         27   DDFU
F32         22   NLDB
F33         16   WATER
F34         15   PCTGEN
F35         13   RDISCLOSURE
F36         11   EMBAL
F37         11   OCEAN
F38         10   NTIS
F39          9   VETU
F40          8   AQUALINE
F41          8   WPIFV
F42          7   CIN
F43          7   KOSMET
```

```
F44             7   PHIN
F45             6   DDFB
F46             6   DRUGB
F47             5   ANABSTR
F48             3   CROPU
F49             3   HEALSAFE
F50             3   IPA
F51             2   ANTE
F52             2   IMSRESEARCH
F53             1   ADISINSIGHT
F54             1   CROPB
F55             1   PHARMAML
F56             1   NAPRALERT


=> file f2-f10, f12,f14
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                         ENTRY    SESSION
FULL ESTIMATED COST                                       4.88       5.09

FILE 'USPATFULL' ENTERED AT 21:55:37 ON 16 JUN 2006
CA INDEXING COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'BIOTECHABS' ACCESS NOT AUTHORIZED

FILE 'BIOTECHDS' ENTERED AT 21:55:37 ON 16 JUN 2006
COPYRIGHT (C) 2006 THE THOMSON CORPORATION

FILE 'WPIDS' ENTERED AT 21:55:37 ON 16 JUN 2006
COPYRIGHT (C) 2006 THE THOMSON CORPORATION

FILE 'WPINDEX' ACCESS NOT AUTHORIZED

FILE 'LIFESCI' ENTERED AT 21:55:37 ON 16 JUN 2006
COPYRIGHT (C) 2006 Cambridge Scientific Abstracts (CSA)


FILE 'ESBIOBASE' ENTERED AT 21:55:37 ON 16 JUN 2006
COPYRIGHT (C) 2006 Elsevier Science B.V., Amsterdam. All rights reserved.

FILE 'BIOTECHNO' ENTERED AT 21:55:37 ON 16 JUN 2006
COPYRIGHT (C) 2006 Elsevier Science B.V., Amsterdam. All rights reserved.

FILE 'CAPLUS' ENTERED AT 21:55:37 ON 16 JUN 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'IFIPAT' ENTERED AT 21:55:37 ON 16 JUN 2006
COPYRIGHT (C) 2006 IFI CLAIMS(R) Patent Services (IFI)

FILE 'USPAT2' ENTERED AT 21:55:37 ON 16 JUN 2006
CA INDEXING COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)

=> s lysin?(s)(produc? or synth?)(s)bacter?
   3 FILES SEARCHED...
L2          7298 LYSIN?(S)(PRODUC? OR SYNTH?)(S) BACTER?

=> s lysi?(s)(produc? or synthe?)(s)(coli? or escheri? or brevib? or cory? or
glutamicu? or actino? or arthro?)
   3 FILES SEARCHED...
   8 FILES SEARCHED...
L3         11640 LYSI?(S)(PRODUC? OR SYNTHE?)(S)(COLI? OR ESCHERI? OR BREVIB? OR
                 CORY? OR GLUTAMICU? OR ACTINO? OR ARTHRO?)
```

```
=> s l3(s)(pimel?)
L4          31 L3(S)(PIMEL?)

=> dup rem l4
PROCESSING COMPLETED FOR L4
L5          22 DUP REM L4 (9 DUPLICATES REMOVED)

=> d ti l5 1-22

L5   ANSWER 1 OF 22  USPATFULL on STN
TI     Nucleotide sequence of the haemophilus influenzae Rd genome, fragments
       thereof, and uses thereof

L5   ANSWER 2 OF 22  USPATFULL on STN
TI     Corynebacterium glutamicum genes encoding phosphoenolpyruvate: sugar
       phosphotransferase system proteins

L5   ANSWER 3 OF 22  USPATFULL on STN                    DUPLICATE 1
TI     NUCLEOTIDE SEQUENCE OF THE HAEMOPHILUS INFLUENZAE RD GENOME, FRAGMENTS
       THEREOF, AND USES THEREOF

L5   ANSWER 4 OF 22  USPATFULL on STN                    DUPLICATE 2
TI     Process for the production of L-lysine using coryneform bacteria

L5   ANSWER 5 OF 22  USPATFULL on STN                    DUPLICATE 3
TI     Process for the production of L-lysine using coryneform bacteria

L5    ANSWER 6 OF 22  BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI    Production of L-lysine, comprises fermentation of L-lysine producing
      coryneform bacteria resistant to diaminopimelic acid analog, enrichment
      of L-lysine in medium, isolation of L-lysine or its feedstuffs additive
      from fermentation broth;
         involving culture medium optimization and fermentation

L5   ANSWER 7 OF 22  USPATFULL on STN
TI     tdcBC/pckA gene-inactivated microorganism and method of producing
       L-threonine using the same

L5   ANSWER 8 OF 22  USPATFULL on STN
TI     Overcoming DAPA aminotransferase bottlenecks in biotin vitamers
       biosynthesis

L5   ANSWER 9 OF 22  USPATFULL on STN
TI     Nucleotide sequence of the haemophilus influenza Rd genome, fragments
       thereof, and uses thereof

L5   ANSWER 10 OF 22  USPATFULL on STN
TI     Corynebacterium glutamicum genes encoding metabolic pathway proteins

L5   ANSWER 11 OF 22  USPATFULL on STN
TI     Nucleotide sequence of the Haemophilus influenzae Rd genome, fragments
       thereof, and uses thereof

L5   ANSWER 12 OF 22  USPATFULL on STN
TI     Nucleotide sequence of the Haemophilus influenzae Rd genome, fragments
       thereof, and uses thereof

L5   ANSWER 13 OF 22  USPATFULL on STN                    DUPLICATE 5
TI     OVERCOMING DAPA AMINOTRANSFERASE BOTTLENECKS IN BIOTIN VITAMERS
       BIOSYNTHESIS

L5   ANSWER 14 OF 22  LIFESCI    COPYRIGHT 2006 CSA on STN DUPLICATE 6
TI   Identification of the Human Mitochondrial Oxodicarboxylate Carrier
     BACTERIAL EXPRESSION, RECONSTITUTION, FUNCTIONAL CHARACTERIZATION, TISSUE
     DISTRIBUTION, AND CHROMOSOMAL LOCATION
```

L5 ANSWER 15 OF 22 Elsevier BIOBASE COPYRIGHT 2006 Elsevier Science B.V. on STN DUPLICATE
TI The three-dimensional structure of the ternary complex of Corynebacterium glutamicum diaminopimelate dehydrogenase-NADPH-L-2-amino-6-methylene-pimelate

L5 ANSWER 16 OF 22 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN
TI Recombinant DNA autonomously replicable in **coryneform** bacteria - used to **produce** L-**lysine**, codes for e.g. aspartokinase, di hydropicolinate reductase and synthase and di amino-**pimelate** decarboxylase.

L5 ANSWER 17 OF 22 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN
TI Vector containing di amino **pimelate** decarboxylase and di amino **pimelate** dehydrogenase genes - used for **lysine** **production** by overexpression in **coryneform** bacteria.

L5 ANSWER 18 OF 22 USPATFULL on STN
TI Cloning of the bioA, bioD, bioF, bioC and BioH genes of bacillus spraericus, vectors and transformed cells

L5 ANSWER 19 OF 22 USPATFULL on STN
TI Coryneform bacteria carrying recombinant plasmids and their use in the fermentative production of L-lysine

L5 ANSWER 20 OF 22 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN
TI L-Lysine production by fermentation - using Corynebacterium microorganism containing recombinant plasmid with fragment coding for protein which decarbonises di amino-pimelic acid.

L5 ANSWER 21 OF 22 BIOTECHNO COPYRIGHT 2006 Elsevier Science B.V. on STN
TI Purification and characterization of succinyl-CoA: Tetrahydrodipicolinate N-succinyltransferase from Escherichia coli

L5 ANSWER 22 OF 22 LIFESCI COPYRIGHT 2006 CSA on STN DUPLICATE 8
TI Colicin M is an inhibitor of murein biosynthesis.

=> d ibib abs 15 6-8, 10, 13, 15-21

L5 ANSWER 6 OF 22 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN DUPLICATE 4
ACCESSION NUMBER: 2004-09352 BIOTECHDS
TITLE: Production of L-lysine, comprises fermentation of L-lysine producing coryneform bacteria resistant to diaminopimelic acid analog, enrichment of L-lysine in medium, isolation of L-lysine or its feedstuffs additive from fermentation broth; involving culture medium optimization and fermentation
AUTHOR: BATHE B; HANS S; PFEFFERLE W
PATENT ASSIGNEE: DEGUSSA AG
PATENT INFO: WO 2004013341 12 Feb 2004
APPLICATION INFO: WO 2003-EP7474 10 Jul 2003
PRIORITY INFO: DE 2002-1035028 31 Jul 2002; DE 2002-1035028 31 Jul 2002
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 2004-191378 [18]
AN 2004-09352 BIOTECHDS
AB DERWENT ABSTRACT:
NOVELTY - **Production** (M1) of L-**lysine**, involves fermentation of the L-**lysine** **producing** **coryneform** bacteria that are at least resistant to diaminopimelic acid analog, in particular 4-hydroxydiaminopimelic acid, enrichment of the L-**lysine** in the medium or in the bacterial cells, and optionally, isolation of the L-**lysine** or L-**lysine**

-containing feedstuffs additive from the fermentation broth.

DETAILED DESCRIPTION - **Production** (M1) of L-**lysine**, involves fermentation of the L-**lysine producing** **coryneform** bacteria that are at least resistant to diaminopimelic acid analog, in particular 4-hydroxydiaminopimelic acid, enrichment of the L-**lysine** in the medium or in the bacterial cells, and optionally, isolation of the L-**lysine** or L-**lysine** -containing feedstuffs additive from the fermentation broth, such that at least 0-100% of the constituents from the fermentation broth and/or from the biomass are present. INDEPENDENT CLAIMS are also included for the following: (1) mutants of **coryneform** bacteria **producing** L-**lysine** and that are resistant to one or more of the diaminopimelic acid analogs chosen from 4-fluorodiamino-**pimelic** acid, 4-hydroxydiaminopimelic acid, 4-oxo-diaminopimelic acid or 2,4,6-triaminopimelic acid; and (2) feedstuffs additives based on fermentation broth, comprising L-**lysine produced** by (M1) and biomass and/or constituents from the fermentation broth formed during the fermentation of the L-**lysine-producing** microorganisms in an amount of 0-5% or 90-100%.

BIOTECHNOLOGY - Preferred Method: In (M1), the bacteria used comprises genes of the biosynthesis pathway of L-**lysine** are enhanced. The bacteria are used in which the metabolic pathways that reduce the formation of L-**lysine** are at least partially switched off. The **production** of L-**lysine** **coryneform** microorganisms are fermented in which at the same time one or more of the genes chosen from following group is/are enhanced, in particular overexpressed: the gene lysC coding for a feedback-resistant aspartate kinase, the gene dapA coding for dihydrodipicolinate synthase, the gene gap coding for glyceraldehyde-3-phosphate dehydrogenase, the gene pyc coding for pyruvate carboxylase, the gene zwf coding for glucose-6-phosphate dehydrogenase, simultaneously the gene lysE coding for the **lysine** export protein, the gene zwal coding for the Zwal protein, the gene lysA coding for diaminopimelic acid decarboxylase, the gene sigC coding for the sigma factor C, the gene tpi coding for triose phosphate isomerase, or the gene pgk coding for 3-phosphoglycerate kinase. The **production** of L-**lysine** **coryneform** microorganisms are fermented in which at the same time one or more of the genes chosen from the following group is/are attenuated: the pck gene coding for phosphoenol pyruvate carboxykinase, the pgi gene coding for glucose-6-phosphate-isomerase, the gene deaD coding for DNA helicase, the gene citE coding for citrate lysase, the gene menE coding for O-succinylbenzoic acid CoA-ligase, the gene mikE17 coding for the transcription regulator MikE17, the gene poxB coding for pyruvate oxidase, or the gene zwa2 coding for the Zwa2 protein. The mutants of **coryneform** bacteria are used that **produce** L-**lysine** and that are resistant to one or more of the diaminopimelic acid analogs.

USE - (M1) is useful for **producing** L-**lysine**, where the microorganisms of the species **Corynebacterium** **glutamicum** are used that are resistant to 4-hydroxydiaminopimelic acid (claimed).

ADVANTAGE - (M1) is an improved process for the fermentative **production** of L-**lysine**.

EXAMPLE - To **produce** L-**lysine**, the following test was done. The **Corynebacterium glutamicum** strain DSM 15662Hdapr obtained was cultured in a nutrient medium suitable for the **production** of **lysine** and the **lysine** content in the culture supernatant was determined. The strains were first of all incubated on agar plates for 24 hours at 33 degrees C. Using this agar plate culture a preculture was inoculated (10 ml of medium in a 100 ml Erlenmeyer flask). The medium MM was used as medium for the preculture. The preculture was incubated for 24 hours at 33 degrees C at 240 rpm on a vibrator. Using this preculture a main culture was inoculated such that the initial optical density (OD-660 nm) of the main culture was 0.1 OD. The medium MM was also used for the main culture.

Culturing was carried out in a 10 ml volume in a 100 ml Erlenmeyer flask equipped with baffles. The culturing was carried out at 33 degrees C and 80% atmospheric humidity. After 72 hour, the OD was determined at a measurement wavelength of 660 nm with a Biomek 1000 instrument. The amount of **lysine** formed was determined by ion exchange chromatography and post-column derivatisation with ninhydrin detection, using an amino acid analyzer from Eppendorf-BioTronik. The result showed that high levels of L-**lysine** was **produced** by DSM 15662Hdapr (18.9 g/l) than the control DSM 15662 (16.2 g/l). (25 pages)

L5 ANSWER 7 OF 22 USPATFULL on STN
ACCESSION NUMBER: 2004:307160 USPATFULL
TITLE: tdcBC/pckA gene-inactivated microorganism and method of producing L-threonine using the same
INVENTOR(S): Park, Young Hoon, Gyeonggi-do, KOREA, REPUBLIC OF
Lee, Byoung Choon, Seoul, KOREA, REPUBLIC OF
Kim, Dae Cheol, Gyeonggi-do, KOREA, REPUBLIC OF
Lee, Jin Ho, Gyeonggi-do, KOREA, REPUBLIC OF
Cho, Jae Yong, Gyeonggi-do, KOREA, REPUBLIC OF

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 2004241831	A1	20041202	
APPLICATION INFO.:	US 2004-817044	A1	20040402	(10)

	NUMBER	DATE
PRIORITY INFORMATION:	KR 2003-21458	20030404

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: BAKER & BOTTS, 30 ROCKEFELLER PLAZA, NEW YORK, NY, 10112
NUMBER OF CLAIMS: 24
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 3 Drawing Page(s)
LINE COUNT: 651
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention provide a microorganism comprising an inactivated chromosomal tdcBC gene and an inactivated chromosomal pckA gene, which has remarkably improved productivity of L-threonine. Also, the present invention provides a method of producing L-threonine using the microorganism. The microorganism is prepared by incorporating by a recombination technique an antibiotic resistance gene into a pckA gene on the chromosome of a bacterial strain containing an L-threonine degradation-associated operon gene, tdcBC, which is inactivated. The microorganism has the effect of preventing degradation and intracellular influx of L-threonine due to the inactivation of the tdcBC operon gene, and includes more activated pathways for L-threonine biosynthesis. Therefore, the microorganism is useful for mass production of L-threonine because of being capable of producing L-threonine in high levels and high yields even in the presence of high concentrations of glucose.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 8 OF 22 USPATFULL on STN
ACCESSION NUMBER: 2004:190227 USPATFULL
TITLE: Overcoming DAPA aminotransferase bottlenecks in biotin vitamers biosynthesis
INVENTOR(S): Van Arsdell, Scott W., Lexington, MA, UNITED STATES
Yocum, R. Rogers, Lexington, MA, UNITED STATES
Perkins, John B., Reading, MA, UNITED STATES
Pero, Janice G., Lexington, MA, UNITED STATES
PATENT ASSIGNEE(S): ROCHE VITAMINS, INC. (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2004146997	A1	20040729
APPLICATION INFO.:	US 2004-754982	A1	20040109 (10)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1997-914332, filed on 14 Jul 1997, GRANTED, Pat. No. US 6737256
DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: Stephen M. Haracz, BRYAN CAVE LLP, 1290 Avenue of the Americas, New York, NY, 10104-3300
NUMBER OF CLAIMS: 31
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 4 Drawing Page(s)
LINE COUNT: 798
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A method is disclosed for the increased production of biotin and the biotin precursor dethiobiotin using a bacterium that produces a lysine-utilizing DAPA aminotransferase. The method involves the use of a bacterium that is either grown in the presence of lysine or deregulated for lysine biosynthesis.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 10 OF 22 USPATFULL on STN
ACCESSION NUMBER: 2003:71519 USPATFULL
TITLE: Corynebacterium glutamicum genes encoding metabolic pathway proteins
INVENTOR(S): Pompejus, Markus, Freinsheim, GERMANY, FEDERAL REPUBLIC OF
Kroger, Burkhard, Limburgerhof, GERMANY, FEDERAL REPUBLIC OF
Schroder, Hartwig, Nussloch, GERMANY, FEDERAL REPUBLIC OF
Zelder, Oskar, Speyer, GERMANY, FEDERAL REPUBLIC OF
Haberhauer, Gregor, Limburgerhof, GERMANY, FEDERAL REPUBLIC OF
Kim, Jun-Won, Seoul, KOREA, REPUBLIC OF
Lee, Heung-Shick, Seoul, KOREA, REPUBLIC OF
Hwang, Byung-Joon, Seoul, KOREA, REPUBLIC OF

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003049804	A1	20030313
APPLICATION INFO.:	US 2000-746660	A1	20001222 (9)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 2000-606740, filed on 23 Jun 2000, PENDING Continuation-in-part of Ser. No. US 2000-603124, filed on 23 Jun 2000, PENDING

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1999-19931420	19990708
	US 1999-141031P	19990625 (60)
	US 1999-142101P	19990702 (60)
	US 1999-148613P	19990812 (60)
	US 2000-187970P	20000309 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: LAHIVE & COCKFIELD, 28 STATE STREET, BOSTON, MA, 02109
NUMBER OF CLAIMS: 47
EXEMPLARY CLAIM: 1
LINE COUNT: 15004
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Isolated nucleic acid molecules, designated MP nucleic acid molecules, which encode novel MP proteins from Corynebacterium glutamicum are described. The invention also provides antisense nucleic acid molecules,

recombinant expression vectors containing MP nucleic acid molecules, and host cells into which the expression vectors have been introduced. The invention still further provides isolated MP proteins, mutated MP proteins, fusion proteins, antigenic peptides and methods for the improvement of production of a desired compound from C. glutamicurn based on genetic engineering of MP genes in this organism.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 13 OF 22 USPATFULL on STN DUPLICATE 5
ACCESSION NUMBER: 2002:185643 USPATFULL
TITLE: OVERCOMING DAPA AMINOTRANSFERASE BOTTLENECKS IN BIOTIN VITAMERS BIOSYNTHESIS
INVENTOR(S): VAN ARSDELL, SCOTT W., LEXINGTON, MA, UNITED STATES
YOCUM, R. ROGERS, LEXINGTON, MA, UNITED STATES
PERKINS, JOHN B., READING, MA, UNITED STATES
PERO, JANICE G., LEXINGTON, MA, UNITED STATES

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 2002098556	A1	20020725	
	US 6737256	B2	20040518	
APPLICATION INFO.:	US 1997-914332	A1	19970714	(8)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: MARK E. WADDELL, ESQ., BRYAN CAVE LLP, 245 PARK AVENUE, NEW YORK, NY, 10167-0034
NUMBER OF CLAIMS: 31
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 4 Drawing Page(s)
LINE COUNT: 951
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A method is disclosed for the increased production of biotin and the biotin precursor dethiobiotin using a bacterium that produces a lysine-utilizing DAPA aminotransferase. This method involves the use of a bacterium that is either grown in the presence of lysine or deregulated for lysine biosynthesis.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 15 OF 22 Elsevier BIOBASE COPYRIGHT 2006 Elsevier Science B.V. on STN DUPLICATE
ACCESSION NUMBER: 2000261887 ESBIOBASE
TITLE: The three-dimensional structure of the ternary complex of Corynebacterium glutamicum diaminopimelate dehydrogenase-NADPH-L-2-amino-6-methylene-pimelate
AUTHOR: Cirilli M.; Scapin G.; Sutherland A.; Vederas J.C.; Blanchard J.S.
CORPORATE SOURCE: J.S. Blanchard, Albert Einstein College of Medicine, Department of Biochemistry, Yeshiva University, 1300 Morris Park Avenue, Bronx, NY 10461, United States. E-mail: blanchar@aecom.yu.edu
SOURCE: Protein Science, (2000), 9/10 (2034-2037), 15 reference(s)
CODEN: PRCIEI ISSN: 0961-8368
DOCUMENT TYPE: Journal; Article
COUNTRY: United States
LANGUAGE: English
SUMMARY LANGUAGE: English
AB The three-dimensional (3D) structure of **Corynebacterium glutamicum** diaminopimelate D-dehydrogenase in a ternary complex with NADPH and L-2-amino-6-methylene-**pimelate** has been solved and refined to a resolution of 2.1 Å. L-2-Amino-6-methylene-**pimelate** was recently **synthesized** and shown to be a potent competitive inhibitor (5 μM) vs. meso-diaminopirnelate of the

Bacillus sphaericus dehydrogenase (Sutherland et al., 1999). Diaminopimelate dehydrogenase catalyzes the reversible NADP.sup.+-dependent oxidation of the D-amino acid stereocenter of mesodiaminopimelate, and is the only enzyme known to catalyze the oxidative deamination of a D-amino acid. The enzyme is involved in the biosynthesis of meso-diaminopimelate and L-**lysine** from L-aspartate, a biosynthetic pathway of considerable interest because it is essential for growth of certain bacteria. The dehydrogenase is found in a limited number of species of bacteria, as opposed to the alternative succinylase and acetylase pathways that are widely distributed in bacteria and plants. The structure of the ternary complex reported here provides a structural rationale for the nature and potency of the inhibition exhibited by the unsaturated L-2-amino-6-methylene-**pimelate** against the dehydrogenase. In particular, we compare the present structure with other structures containing either bound substrate, meso-diaminopimelate, or a conformationally restricted isoxazoline inhibitor. We have identified a significant interaction between the α-L-amino group of the unsaturated inhibitor and the indole ring of Trp144 that may account for the tight binding of this inhibitor.

L5 ANSWER 16 OF 22 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN
ACCESSION NUMBER: 1998-379060 [33] WPIDS
DOC. NO. CPI: C2005-242288
TITLE: Recombinant DNA autonomously replicable in **coryneform** bacteria - used to **produce** L-**lysine**, codes for e.g. aspartokinase, di hydropicolinate reductase and synthase and di amino-**pimelate** decarboxylase.
DERWENT CLASS: B05 C03 D13 D16 E16
INVENTOR(S): ARAKI, M; NAKAMATSU, T; SUGIMOTO, M; YOSHIHARA, Y; YOSHIHA, Y
PATENT ASSIGNEE(S): (AJIN) AJINOMOTO CO INC; (AJIN) AJINOMOTO KK
COUNTRY COUNT: 30
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
EP 854189	A2	19980722	(199833)*	EN	59
R: AL AT BE CH DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
SK 9701636	A3	19980708	(199836)		
JP 10215883	A	19980818	(199843)		46
HU 9702360	A2	19990628	(199931)		
BR 9706059	A	19991005	(200006)		
US 6004773	A	19991221	(200006)		
CN 1187540	A	19980715	(200267)		
CN 1524956	A	20040901	(200478)		
HU 224492	B1	20050928	(200581)B		
CN 1159443	C	20040728	(200612)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 854189	A2	EP 1997-121443	19971205
SK 9701636	A3	SK 1997-1636	19971203
JP 10215883	A	JP 1997-333238	19971203
HU 9702360	A2	HU 1997-2360	19971205
BR 9706059	A	BR 1997-6059	19971205
US 6004773	A	US 1997-985908	19971205
CN 1187540	A	CN 1997-120820	19971205
CN 1524956	A Div ex	CN 1997-120820	19971205
		CN 2003-133131	19971205
HU 224492	B1	HU 1997-2360	19971205

CN 1159443	C		CN 1997-120820	19971205

PRIORITY APPLN. INFO: JP 1996-325659 19961205
AN 1998-379060 [33] WPIDS
AB EP 854189 A UPAB: 20051222
Recombinant DNA (A) autonomously replicable in cells of coryneform bacteria (CB), comprising a DNA sequence coding for an aspartokinase (AK) in which feedback inhibition by L-lysine and L-threonine is desensitised, a DNA sequence coding for a dihydrodipicolinate reductase (DHPR), a DNA sequence coding for dihydropicolinate synthase (DHPS), a DNA sequence coding for diaminopimelate decarboxylase (DAMD) and a DNA sequence coding for aspartate aminotransferase (AAT), is new.
USE - The DNA and related products can be used for improving L-lysine productivity by CB. The L-lysine produced can be used as a fodder additive.
Dwg.0/14

L5 ANSWER 17 OF 22 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN
ACCESSION NUMBER: 1998-020947 [03] WPIDS
DOC. NO. CPI: C1998-007874
TITLE: Vector containing di amino **pimelate** decarboxylase and di amino **pimelate** dehydrogenase genes - used for **lysine production** by overexpression in **coryneform** bacteria.
DERWENT CLASS: B05 D16 E16
INVENTOR(S): HAYAKAWA, A; HIRANO, S; IZUI, M; NAKAMATSU, T; NAKANO, E; SUGIMOTO, M; YOSHIHARA, Y; ATSUSHI, H; EIICHI, N; MASAKAZU, S; MASAKO, I; SEIKO, H; TSUYOSHI, N; YASUHIKO, Y
PATENT ASSIGNEE(S): (AJIN) AJINOMOTO CO INC; (AJIN) AJINOMOTO KK
COUNTRY COUNT: 13
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
EP 811682	A2	19971210	(199803)*	EN	63
R: DE DK ES FR GB IT NL					
JP 09322774	A	19971216	(199809)		39
SK 9700593	A3	19971210	(199811)		
BR 9703475	A	19980929	(199846)		
HU 9700851	A2	19990628	(199931)		
US 6090597	A	20000718	(200037)		
CN 1171442	A	19980128	(200328)		
EP 811682	B1	20040121	(200410)	EN	
R: DE DK ES FR GB IT NL					
DE 69727260	E	20040226	(200419)		
ES 2214567	T3	20040916	(200462)		
HU 223764	B1	20050128	(200519)		
SK 284739	B6	20051006	(200568)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 811682	A2	EP 1997-108764	19970602
JP 09322774	A	JP 1996-142812	19960605
SK 9700593	A3	SK 1997-593	19970512
BR 9703475	A	BR 1997-3475	19970605
HU 9700851	A2	HU 1997-851	19970506
US 6090597	A	US 1997-852730	19970507
CN 1171442	A	CN 1997-112960	19970605
EP 811682	B1	EP 1997-108764	19970602
DE 69727260	E	DE 1997-627260	19970602

		EP 1997-108764	19970602
ES 2214567	T3	EP 1997-108764	19970602
HU 223764	B1	HU 1997-851	19970506
SK 284739	B6	SK 1997-593	19970512

FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 69727260	E Based on	EP 811682
ES 2214567	T3 Based on	EP 811682
SK 284739	B6 Previous Publ.	SK 9700593

PRIORITY APPLN. INFO: JP 1996-142812 19960605
AN 1998-020947 [03] WPIDS
AB EP 811682 A UPAB: 19980610
A recombinant DNA that is autonomously replicable in cells of coryneform bacteria and comprises a DNA sequence coding for a diaminopimelate decarboxylase and a DNA sequence encoding a diaminopimelate dehydrogenase, is new.

Also claimed is a coryneform bacterium in which the DNA sequence coding for diaminopimelate decarboxylase and the DNA sequence encoding diaminopimelate dehydrogenase are enhanced.
(UUSEU)

The coryneform bacterium is used for producing L-lysine (claimed).
(UADVANTAGEU)

Simultaneous overexpression of the diaminopimelate decarboxylase gene (ddc) and the diaminopimelate dehydrogenase gene (lysA) in (IBrevibacterium lactofermentumI) results in increased yields of L-lysine.
(UPREFERRED DNAU)

The diaminopimelate decarboxylase DNA sequence encodes a 445 amino acid sequence given in the specification. The diaminopimelate dehydrogenase DNA sequence encodes a 320 amino acid sequence given in the specification.
(UEXAMPLEU)

Plasmid pDL is a pUC18 derivative containing a ddc insert and a lysA insert. (IB. lactofermentumI) AJ11082 transformed with pDL produced 23.3 g/l of L-lysine after 40 hr and 31.6 g/l after 72 hr. The corresponding values for wild-type AJ11082 were 22.0 and 29.8 g/l.
(GS7)
Dwg.0/14

L5 ANSWER 18 OF 22 USPATFULL on STN

ACCESSION NUMBER:	92:20924 USPATFULL
TITLE:	Cloning of the bioA, bioD, bioF, bioC and BioH genes of bacillus spraericus, vectors and transformed cells
INVENTOR(S):	Gloeckler, Remi, Strasbourg, France Speck, Denis, Eckbolsheim, France Lemoine, Yves, Strasbourg-Neudorf, France
PATENT ASSIGNEE(S):	Transgene S.A., Courbevoie, France (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5096823		19920317	
APPLICATION INFO.:	US 1987-102740		19870930	(7)

	NUMBER	DATE
PRIORITY INFORMATION:	FR 1986-13603	19860930
	FR 1987-6916	19870518

DOCUMENT TYPE:	Utility
FILE SEGMENT:	Granted
PRIMARY EXAMINER:	Schwartz, Richard A.
ASSISTANT EXAMINER:	Nolan, S. L.

LEGAL REPRESENTATIVE: Cushman, Darby & Cushman
NUMBER OF CLAIMS: 21
EXEMPLARY CLAIM: 1,8
NUMBER OF DRAWINGS: 41 Drawing Figure(s); 38 Drawing Page(s)
LINE COUNT: 814
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention relates, in particular, to a DNA sequence corresponding to one of the following genes involved in the chain of biotin biosynthesis in bacteria: bioA gene, bioD gene, bioF, bioC and bioH gene.

Vectors containing these sequences enable other microorganisms to be transformed in order to improve the production of biotin.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 19 OF 22 USPATFULL on STN
ACCESSION NUMBER: 89:71975 USPATFULL
TITLE: Coryneform bacteria carrying recombinant plasmids and their use in the fermentative production of L-lysine
INVENTOR(S): Sano, Konosuke, Tokyo, Japan
Ito, Koichi, Kawasaki, Japan
Miwa, Kiyoshi, Matsudo, Japan
Nakamori, Shigeru, Yokohama, Japan
PATENT ASSIGNEE(S): Ajinomoto Company, Inc., Tokyo, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 4861722		19890829
APPLICATION INFO.:	US 1987-56310		19870601 (7)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1983-525993, filed on 24 Aug 1983, now abandoned
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Moskowitz, Margaret
LEGAL REPRESENTATIVE: Oblon, Fisher, Spivak, McClelland & Maier
NUMBER OF CLAIMS: 9
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 9 Drawing Figure(s); 8 Drawing Page(s)
LINE COUNT: 537
AB A genetic sequence coding for the production of a protein having the activity of diaminopimelic acid decarboxylase and having two Pst I cleavage sites in its DNA chain and a molecular weight of 2.9±0.05 Md, is incorporated into a vehicle capable of replication in Coryneform bacteria and used to produce L-lysine by fermentation.

L5 ANSWER 20 OF 22 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN
ACCESSION NUMBER: 1985-155057 [26] WPIDS
DOC. NO. CPI: C1985-067542
TITLE: L-Lysine production by fermentation - using Corynebacterium microorganism containing recombinant plasmid with fragment coding for protein which decarbonises di amino-pimelic acid.
DERWENT CLASS: B05 D16 E16
PATENT ASSIGNEE(S): (AJIN) AJINOMOTO KK
COUNTRY COUNT: 3
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 60062994	A	19850411	(198526)*		12
US 4861722	A	19890829	(198944)		
JP 06091829	B2	19941116	(199444)		11

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 60062994	A	JP 1984-169897	19840816
US 4861722	A	US 1987-56310	19870601
JP 06091829	B2	JP 1984-169897	19840816

FILING DETAILS:

PATENT NO	KIND		PATENT NO
JP 06091829	B2	Based on	JP 60062994

PRIORITY APPLN. INFO: US 1983-525993 19830824; US 1987-56310 19870601

AN 1985-155057 [26] WPIDS

AB JP 60062994 A UPAB: 19930925
Method comprises cultivation of Corynebacterium type microorganism which contains a recombinant plasmid having DNA fragment. The fragment has a gene configuration coding information on production of protein having enzymatic activity for decarbonising diamino-pimelic acid, the fragment having mol. weight of 2.9+/-0.5 MD, having 2 PstI sites, 2 Sal I sites, 2 Hind III sites and one Cla I site, and producing small fragments of 1.0MD, 0.7 MD and 0.3 MD, respectively, upon splitting at Pst I site.
0/9

ABEQ US 4861722 A UPAB: 19930925
Corynebacterial and Brevicaterial species are transformed with a genetic sequence (obtd. form Brevibacterium lactofermentum, ATCC 13,869) which encodes the formation of diaminopimelic acid decarboxylase. The modified bacteria are propagated and the enzyme is isolated from the culture media.
USE - The enzyme is utilised in the prodn. of lysine.

L5 ANSWER 21 OF 22 BIOTECHNO COPYRIGHT 2006 Elsevier Science B.V. on STN
ACCESSION NUMBER: 1984:14163133 BIOTECHNO
TITLE: Purification and characterization of succinyl-CoA: Tetrahydrodipicolinate N-succinyltransferase from Escherichia coli
AUTHOR: Simms S.A.; Voige W.H.; Gilvarg C.
CORPORATE SOURCE: Department of Biochemical Sciences, Princeton University, Princeton, NJ 08544, United States.
SOURCE: Journal of Biological Chemistry, (1984), 259/5 (2734-2741)
CODEN: JBCHA3
DOCUMENT TYPE: Journal; Article
COUNTRY: United States
LANGUAGE: English

AN 1984:14163133 BIOTECHNO
AB Tetrahydrodipicolinate succinylase, an enzyme involved in the diaminopimelate-**lysine** pathway, was purified 1900-fold from crude extracts of **Escherichia coli.** The enzyme catalyzes the formation of CoA and N-succinyl-2-amino-6-keto-L-**pimelate** from succinyl-CoA and tetrahydrodipicolinate. The purified enzyme was shown to be homogeneous by polyacrylamide gel electrophoresis. The Stokes radius of the enzyme was determined from its elution volume on a Sephacryl S300 column and its sedimentation constant from sucrose density gradient centrifugation. These were 35 Å and 4.7 (S.sub.2.sub.0.sub.,.sub.w), respectively. The enzyme consists of two subunits each with a mass of 31,000 daltons, as determined using sodium dodecyl sulfate/polyacrylamide gel electrophoresis. Tetrahydrodipicolinate succinylase was shown to be a sulfhydryl enzyme. It has a pH optimum of 8.2. The equilibrium lies predominantly in favor of **product** formation but the reverse reaction can be demonstrated in vitro.

majority of the KAPA was converted to DTB.

L5 ANSWER 15 OF 22 Elsevier BIOBASE COPYRIGHT 2006 Elsevier Science B.V. on STN DUPLICATE

AB The three-dimensional (3D) structure of **Corynebacterium glutamicum** diaminopimelate D-dehydrogenase in a ternary complex with NADPH and L-2-amino-6-methylene-**pimelate** has been solved and refined to a resolution of 2.1 Å. L-2-Amino-6-methylene-**pimelate** was recently **synthesized** and shown to be a potent competitive inhibitor (5 μM) vs. meso-diaminopirnelate of the Bacillus sphaericus dehydrogenase (Sutherland et al.,. . . known to catalyze the oxidative deamination of a D-amino acid. The enzyme is involved in the biosynthesis of meso-diaminopimelate and L-**lysine** from L-aspartate, a biosynthetic pathway of considerable interest because it is essential for growth of certain bacteria. The dehydrogenase is. . . ternary complex reported here provides a structural rationale for the nature and potency of the inhibition exhibited by the unsaturated L-2-amino-6-methylene-**pimelate** against the dehydrogenase. In particular, we compare the present structure with other structures containing either bound substrate, meso-diaminopimelate, or a. . .

L5 ANSWER 16 OF 22 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN

TI Recombinant DNA autonomously replicable in **coryneform** bacteria - used to **produce** L-**lysine**, codes for e.g. aspartokinase, di hydropicolinate reductase and synthase and di amino-**pimelate** decarboxylase.

L5 ANSWER 17 OF 22 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN

TI Vector containing di amino **pimelate** decarboxylase and di amino **pimelate** dehydrogenase genes - used for **lysine production** by overexpression in **coryneform** bacteria.

L5 ANSWER 18 OF 22 USPATFULL on STN

DETD . . . Eisenberg (1985, Annals New York Academy of Sciences 447, 335-349) then proposed that this gene codes for a subunit of **pimeloyl**-CoA **synthetase** (bioH). It should be noted that the E. **coli** mutants which are overproductive of biotin (selected either by a level of excretion of vitamin permitting the growth of a bioB auxotroph of E. **coli**, or by resistance to alpha-dehydrobiotin) have all been identified genetically as affected at the bioR locus. This locus codes for a multifunctional protein (repressor of the **synthesis** of the messenger RNAs of the bioABFCD operon and **synthetase** holoenzyme binding biotin to a **lysine** residue of different apoenzymes having a carboxylase function).

L5 ANSWER 19 OF 22 USPATFULL on STN

DETD The biosynthetic pathway for the **production** of **lysine**, threonine and isoleucine is shown in the "Description of the Prior Art". The scheme demonstrates the presence of DAPDase enzyme as the last step in the branch leading to L-**lysine.** DNA containing sufficient genetic information to code for DAPDase is obtained from an appropriate DNA donor. Preferably, the donor is a **Coryneform** bacterium, most preferably **Brevibacterium** lactofermentum. The genetic information coding for DAPDase can be obtained by partial digestion of DNA from the donor, introduction of the genetic sequence into an appropriate plasmid, transformation of an DAPDase deficient **Coryneform** bacteria with the resulting mixture of recombinant DNAs, and isolation of transformants which can grow on diamino **pimelic** acid (dap).

L5 ANSWER 20 OF 22 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN

TT TT: **LYSINE PRODUCE** FERMENTATION **CORYNEBACTERIUM** MICROORGANISM CONTAIN RECOMBINATION PLASMID FRAGMENT CODE PROTEIN DI AMINO **PIMELIC** ACID.

AW: DNA ENZYME.

L5 ANSWER 21 OF 22 BIOTECHNO COPYRIGHT 2006 Elsevier Science B.V. on STN
AB Tetrahydrodipicolinate succinylase, an enzyme involved in the diaminopimelate-**lysine** pathway, was purified 1900-fold from crude extracts of **Escherichia coli**. The enzyme catalyzes the formation of CoA and N-succinyl-2-amino-6-keto-L-**pimelate** from succinyl-CoA and tetrahydrodipicolinate. The purified enzyme was shown to be homogeneous by polyacrylamide gel electrophoresis. The Stokes radius of. . . shown to be a sulfhydryl enzyme. It has a pH optimum of 8.2. The equilibrium lies predominantly in favor of **product** formation but the reverse reaction can be demonstrated in vitro.

=> d his full

(FILE 'HOME' ENTERED AT 21:50:20 ON 16 JUN 2006)

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, ANTE, AQUALINE, AQUASCI, BIOENG, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CAPLUS, CEABA-VTB, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DISSABS, DRUGB, DRUGMONOG2, DRUGU, EMBAL, EMBASE, ...' ENTERED AT 21:50:50 ON 16 JUN 2006
SEA LYSIN?(S)(PRODUC? OR SYNTH?)(S)BACTER?

1	FILE ADISINSIGHT
133	FILE AGRICOLA
5	FILE ANABSTR
2	FILE ANTE
8	FILE AQUALINE
56	FILE AQUASCI
212	FILE BIOENG
249	FILE BIOSIS
824	FILE BIOTECHABS
824	FILE BIOTECHDS
494	FILE BIOTECHNO
359	FILE CABA
479	FILE CAPLUS
78	FILE CEABA-VTB
7	FILE CIN
1	FILE CROPB
3	FILE CROPU
6	FILE DDFB
27	FILE DDFU
10746	FILE DGENE
84	FILE DISSABS
6	FILE DRUGB
59	FILE DRUGU
11	FILE EMBAL
106	FILE EMBASE
495	FILE ESBIOBASE
125	FILE FROSTI
204	FILE FSTA
408	FILE GENBANK
3	FILE HEALSAFE
392	FILE IFIPAT
2	FILE IMSRESEARCH
81	FILE JICST-EPLUS
7	FILE KOSMET
576	FILE LIFESCI
136	FILE MEDLINE
10	FILE NTIS
11	FILE OCEAN
293	FILE PASCAL
15	FILE PCTGEN

```
                1   FILE PHARMAML
                7   FILE PHIN
               61   FILE PROMT
               13   FILE RDISCLOSURE
              133   FILE SCISEARCH
               99   FILE TOXCENTER
             3167   FILE USPATFULL
              294   FILE USPAT2
                9   FILE VETU
               16   FILE WATER
              577   FILE WPIDS
                8   FILE WPIFV
              577   FILE WPINDEX
                3   FILE IPA
                1   FILE NAPRALERT
               22   FILE NLDB
L1               QUE LYSIN?(S)(PRODUC? OR SYNTH?)(S) BACTER?
                 ---------
                 D RANK

     FILE 'USPATFULL, BIOTECHDS, WPIDS, LIFESCI, ESBIOBASE, BIOTECHNO, CAPLUS,
     IFIPAT, USPAT2' ENTERED AT 21:55:37 ON 16 JUN 2006
L2          7298 SEA LYSIN?(S)(PRODUC? OR SYNTH?)(S) BACTER?
L3         11640 SEA LYSI?(S)(PRODUC? OR SYNTHE?)(S)(COLI? OR ESCHERI? OR
                 BREVIB? OR CORY? OR GLUTAMICU? OR ACTINO? OR ARTHRO?)
L4            31 SEA L3(S)(PIMEL?)
L5            22 DUP REM L4 (9 DUPLICATES REMOVED)
                 D TI L5 1-22
                 D IBIB ABS L5 6-8, 10, 13, 15-21
                 D KWIC L5 6-8, 10, 13, 15-21


     FILE HOME

     FILE STNINDEX

     FILE USPATFULL
     FILE COVERS 1971 TO PATENT PUBLICATION DATE: 15 Jun 2006 (20060615/PD)
     FILE LAST UPDATED: 15 Jun 2006 (20060615/ED)
     HIGHEST GRANTED PATENT NUMBER: US7062785
     HIGHEST APPLICATION PUBLICATION NUMBER: US2006130207
     CA INDEXING IS CURRENT THROUGH 15 Jun 2006 (20060615/UPCA)
     ISSUE CLASS FIELDS (/INCL) CURRENT THROUGH: 15 Jun 2006 (20060615/PD)
     REVISED CLASS FIELDS (/NCL) LAST RELOADED: Feb 2006
     USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Feb 2006


     FILE BIOTECHDS
     FILE LAST UPDATED: 8 JUN 2006       <20060608/UP>
     FILE COVERS 1982 TO DATE

     >>> USE OF THIS FILE IS LIMITED TO BIOTECH SUBSCRIBERS <<<

     FILE WPIDS
     FILE LAST UPDATED:          16 JUN 2006      <20060616/UP>
     MOST RECENT DERWENT UPDATE:     200638        <200638/DW>
     DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

     >>> FOR A COPY OF THE DERWENT WORLD PATENTS INDEX STN USER GUIDE,
         PLEASE VISIT:
      http://www.stn-international.de/training_center/patents/stn_guide.pdf <

     >>> FOR DETAILS OF THE PATENTS COVERED IN CURRENT UPDATES, SEE
     http://scientific.thomson.com/support/patents/coverage/latestupdates/
```

```
      ISSUE CLASS FIELDS (/INCL) CURRENT THROUGH: 15 Jun 2006 (20060615/PD)
      REVISED CLASS FIELDS (/NCL) LAST RELOADED:  Feb 2006
      USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Feb 2006


=>
=> s l3(s)(pimel? or diaminopimel?)
L6          424 L3(S)(PIMEL? OR DIAMINOPIMEL?)

=> s l6(s)(anal? or inhibi?)
   5 FILES SEARCHED...
L7          221 L6(S)(ANAL? OR INHIBI?)

=> dup rem  l7
PROCESSING COMPLETED FOR L7
L8           161 DUP REM L7 (60 DUPLICATES REMOVED)

=> s l8(s)(gene? or dna? or polynucl? or mrna? or cdna?)
   3 FILES SEARCHED...
   5 FILES SEARCHED...
   7 FILES SEARCHED...
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'L68(S)(GENE?'
L9          113 L8(S)(GENE? OR DNA? OR POLYNUCL? OR MRNA? OR CDNA?)

=> d ti l9 1-113

L9   ANSWER 1 OF 113  USPATFULL on STN
TI     Intracellular metabolic flux analysis method using substrate labeled
       with isotope

L9   ANSWER 2 OF 113  USPATFULL on STN
TI     Polynucleotides and polypeptides isolated from lactobacillus and methods
       for their use

L9   ANSWER 3 OF 113  USPATFULL on STN
TI     Corynebacterium glutamicum genes encoding metabolic pathway proteins

L9   ANSWER 4 OF 113  USPATFULL on STN
TI     Corynebacterium glutamicum genes encoding stress, resistance and
       tolerance proteins

L9   ANSWER 5 OF 113  USPATFULL on STN
TI     Corynebacterium glutamicum genes encoding proteins involved in
       homeostasis and adaptation

L9   ANSWER 6 OF 113  USPATFULL on STN
TI     Methods and compositions for amino acid production

L9   ANSWER 7 OF 113  USPATFULL on STN
TI     Corynebacterium glutamicum genes encoding novel proteins

L9   ANSWER 8 OF 113  USPATFULL on STN
TI     Corynebacterium glutamicum genes encoding proteins involved in membrane
       synthesis and membrane transport

L9   ANSWER 9 OF 113  USPATFULL on STN
TI     Method for determining metabolic flux

L9   ANSWER 10 OF 113  USPATFULL on STN
TI     Corynebacterium glutamicum genes encoding phosphoenolpyruvate: sugar
       phosphotransferase system proteins

L9   ANSWER 11 OF 113  USPATFULL on STN
TI     Corynebacterium glutamicum genes encoding proteins involved in
```

homeostasis and adaptation

L9 ANSWER 12 OF 113 USPATFULL on STN
TI Intracellular metabolic flux analysis method using substrate labeled with isotope

L9 ANSWER 13 OF 113 USPATFULL on STN
TI Attaching substances to microorganisms

L9 ANSWER 14 OF 113 USPATFULL on STN
TI Corynebacterium glutamicum genes encoding phosphoenolpyruvate: sugar phosphotransferase system proteins

L9 ANSWER 15 OF 113 USPATFULL on STN
TI Method for producing target substance by fermentation

L9 ANSWER 16 OF 113 USPATFULL on STN
TI Corynebacterium glutamicum genes encoding proteins involved in homeostasis and adaptation

L9 ANSWER 17 OF 113 USPATFULL on STN
TI Corynebacterium glutamicum genes encoding stress, resistance and tolerance proteins

L9 ANSWER 18 OF 113 USPATFULL on STN
TI Method for producing L-lysine using methanol-utilizing bacterium

L9 ANSWER 19 OF 113 USPATFULL on STN
TI Anti-bacterial methods and materials

L9 ANSWER 20 OF 113 USPATFULL on STN
TI Genes involved in polysaccharide production and utilization thereof

L9 ANSWER 21 OF 113 USPATFULL on STN
TI Process for producing l-amino acid and novel gene

L9 ANSWER 22 OF 113 USPATFULL on STN
TI Process for the production of L-lysine using coryneform bacteria

L9 ANSWER 23 OF 113 USPATFULL on STN
TI Process for the production of L-lysine using coryneform bacteria

L9 ANSWER 24 OF 113 USPATFULL on STN
TI Genes of corynebacterium

L9 ANSWER 25 OF 113 USPATFULL on STN
TI Corynebacterium glutamicum genes encoding proteins involved in membrane synthesis and membrane transport

L9 ANSWER 26 OF 113 USPATFULL on STN
TI Poroplasts

L9 ANSWER 27 OF 113 USPATFULL on STN
TI Minicell-based screening for compounds and proteins that modulate the activity of signalling proteins

L9 ANSWER 28 OF 113 USPATFULL on STN
TI Antibodies to native conformations of membrane proteins

L9 ANSWER 29 OF 113 USPATFULL on STN
TI Reverse screening and target identification with minicells

L9 ANSWER 30 OF 113 USPATFULL on STN
TI Minicell-based bioremediation

L9 ANSWER 31 OF 113 USPATFULL on STN
TI Methods of making pharmaceutical compositions with minicells

L9 ANSWER 32 OF 113 USPATFULL on STN
TI Minicell-based delivery agents

L9 ANSWER 33 OF 113 USPATFULL on STN
TI Minicell-based selective absorption

L9 ANSWER 34 OF 113 USPATFULL on STN
TI Pharmaceutical compositions with minicells

L9 ANSWER 35 OF 113 USPATFULL on STN
TI Conjugated minicells

L9 ANSWER 36 OF 113 USPATFULL on STN
TI Methods of minicell-based delivery

L9 ANSWER 37 OF 113 USPATFULL on STN
TI Minicell-based diagnostics

L9 ANSWER 38 OF 113 USPATFULL on STN
TI Membrane to membrane delivery

L9 ANSWER 39 OF 113 USPATFULL on STN
TI Minicell-based gene therapy

L9 ANSWER 40 OF 113 USPATFULL on STN
TI Solid supports with minicells

L9 ANSWER 41 OF 113 USPATFULL on STN
TI Minicell libraries

L9 ANSWER 42 OF 113 USPATFULL on STN
TI Forward screening with minicells

L9 ANSWER 43 OF 113 USPATFULL on STN
TI Minicell compositions and methods

L9 ANSWER 44 OF 113 USPATFULL on STN
TI Minicell-based transformation

L9 ANSWER 45 OF 113 USPATFULL on STN
TI Minicell-producing parent cells

L9 ANSWER 46 OF 113 USPATFULL on STN
TI Minicell-based rational drug design

L9 ANSWER 47 OF 113 USPATFULL on STN
TI Target display on minicells

L9 ANSWER 48 OF 113 USPATFULL on STN
TI Minicell-based transfection

L9 ANSWER 49 OF 113 USPATFULL on STN
TI Minicells comprising membrane proteins

L9 ANSWER 50 OF 113 USPATFULL on STN
TI Anti-bacterial methods and materials

L9 ANSWER 51 OF 113 USPATFULL on STN
TI Polynucleotides and polypeptides, materials incorporating them and methods for using them

L9 ANSWER 52 OF 113 USPATFULL on STN

TI Staphylococcus aureus polynucleotides and sequences

L9 ANSWER 53 OF 113 USPATFULL on STN
TI Nucleic acid sequences and expression system relating to Enterococcus faecium for diagnostics and therapeutics

L9 ANSWER 54 OF 113 USPATFULL on STN
TI Method of producing L-lysine

L9 ANSWER 55 OF 113 USPATFULL on STN
TI Corynebacterium glutamicum genes encoding metabolic pathway proteins

L9 ANSWER 56 OF 113 USPATFULL on STN
TI Novel Polynucleotides

L9 ANSWER 57 OF 113 USPATFULL on STN
TI Polynucleotides, materials incorporating them, and methods for using them

L9 ANSWER 58 OF 113 USPATFULL on STN
TI METHOD OF PRODUCING L-LYSINE

L9 ANSWER 59 OF 113 USPATFULL on STN
TI Method for producing L-lysine

L9 ANSWER 60 OF 113 USPATFULL on STN
TI Method of producing L-lysine by fermentation

L9 ANSWER 61 OF 113 USPATFULL on STN
TI Method for producing L-lysine

L9 ANSWER 62 OF 113 USPATFULL on STN
TI Method of process for producing L-lysine by fermentation

L9 ANSWER 63 OF 113 USPATFULL on STN
TI Method of inducing lysine overproduction in plants

L9 ANSWER 64 OF 113 USPATFULL on STN
TI Bacillus MGA3 aspartokinase II gene

L9 ANSWER 65 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Fermentative preparation of L-lysine-containing product, involves inoculating and culturing bacterium in nutrient medium using coryneform bacteria through oxidative pentose phosphate pathway or tricarboxylic acid cycle;
involving Corynebacterium culture medium optimization for amino acid preparation

L9 ANSWER 66 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Fermentative preparation of L-lysine-containing product by inoculating and culturing coryneform bacteria in nutrient medium, continuously supplying nutrient medium to culture for producing L-lysine, removing culture broth from culture;
for use in pharmaceutical industry

L9 ANSWER 67 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Fermentative preparation of L-lysine-containing product using coryneform bacteria which produce L-lysine, by culturing bacterium in medium having carbon, nitrogen and phosphorus, and culturing bacterium to allow formation of L-lysine;
for use in pharmaceutical industry

L9 ANSWER 68 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Fermentative preparation of L-lysine-containing product by inoculating and culturing coryneform bacteria in nutrient medium, continuously

supplying nutrient medium to culture for producing L-lysine, removing culture broth from culture;
for use in pharmaceutical and food industry

L9 ANSWER 69 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Cloning, characterization and heterologous expression of the aspartokinase and aspartate semialdehyde dehydrogenase genes of cephamycin C-producer Streptomyces clavuligerus;
recombinant enzyme protein purification and characterization via plasmid expression in host cell for use in antibiotic production

L9 ANSWER 70 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Production of L-lysine, comprises fermentation of L-lysine producing coryneform bacteria resistant to diaminopimelic acid analog, enrichment of L-lysine in medium, isolation of L-lysine or its feedstuffs additive from fermentation broth;
involving culture medium optimization and fermentation

L9 ANSWER 71 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Producing L-lysine by fermenting L-lysine producing coryneform bacteria sensitive to 4-hydroxydiaminopimelate, adding L-lysine in medium/bacterial cell, optionally isolating L-lysine/L-lysine-containing feedstuff additive;
involving Corynebacterium glutamicum fermentation

L9 ANSWER 72 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Producing target substance e.g. L-amino acid, by culturing a mutant or recombinant microorganism in a culture medium to produce and accumulate target substance, and collecting target substance from the culture;
L-amino acid production by recombinant Escherichia coli culture

L9 ANSWER 73 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI New bacterium of genus Escherichia, for producing L-threonine, is available in conjunction with two strains of Escherichia coli, and subsequent mutation and selection of aminohydroxyvaleric acid negative strains;
L-amino acid production by Escherichia sp. culture, useful as food and food-additive, and in medicine

L9 ANSWER 74 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI New recombinant DNA encoding aspartokinase in Coryneform bacterium;
recombinant aspartate-kinase used in preparation of L-lysine

L9 ANSWER 75 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Recombinant DNA autonomously replicable in coryneform bacteria;
used to produce L-lysine, codes for e.g. aspartokinase, dihydropicolinate-reductase and synthase and diaminopimelate-decarboxylase

L9 ANSWER 76 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Dynamics of intracellular flux distribution at branchpoints in Corynebacterium metabolism;
metabolic engineering for e.g. amino acid production (conference abstract)

L9 ANSWER 77 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI L-lysine production by culture of transformant Corynebacterium;
Brevibacterium lactofermentum recombinant aspartokinase expression in B. lactofermentum using vector plasmid pCAB, for reduced feedback inhibition

L9 ANSWER 78 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI L-lysine production by culture of transformant Corynebacterium;
Brevibacterium lactofermentum recombinant aspartokinase expression in B. lactofermentum using vector plasmid pCAB, for reduced feedback

inhibition

L9 ANSWER 79 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Construction of L-lysine, L-threonine-, or L-isoleucine-overproducing strains of Corynebacterium glutamicum;
metabolic engineering for strain improvement (conference paper)

L9 ANSWER 80 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Metabolic design in amino acid producing bacterium Corynebacterium glutamicum;
metabolic engineering; a review (conference paper)

L9 ANSWER 81 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Production of L-lysine by culture of Escherichia coli transformant;
dihydrodipicolinate-reductase and diaminopimelate-dehydrogenase expression in E. coli, for application in recombinant L-lysine production

L9 ANSWER 82 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Effect of different levels of aspartokinase on the lysine production by Corynebacterium lactofermentum;
transconjugation and electroporation; sequence analysis of the beta-subunit

L9 ANSWER 83 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Cloning and sequence analysis of the meso-diaminopimelate-decarboxylase gene from Bacillus methanolicus MGA3 and comparison to other decarboxylase genes;
gene cloning and expression in Escherichia coli for use in L-lysine preparation

L9 ANSWER 84 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Control of the lysine biosynthesis sequence in Corynebacterium glutamicum as analyzed by overexpression of the individual corresponding genes;
feedback inhibition resistant aspartate-kinase and dihydrodipicolinate-synthase gene cloning and expression

L9 ANSWER 85 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Cloning and expression of key enzymes in L-lysine biosynthesis from thermophilic bacilli: diaminopimelate-decarboxylase from Bacillus MGA3;
gene cloning in Escherichia coli (conference abstract)

L9 ANSWER 86 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Cloning and expression of lysA gene in Escherichia coli and Brevibacterium flavum;
diaminopimelate-decarboxylase gene containing shuttle vector plasmid pCW1 construction (conference abstract)

L9 ANSWER 87 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Cloning and sequencing of the meso-diaminopimelate-D-dehydrogenase (ddh) gene of Corynebacterium glutamicum;
involved in lysine biosynthesis

L9 ANSWER 88 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI General organization of the genes specifically involved in the diaminopimelate-lysine biosynthetic pathway of Corynebacterium glutamicum;
diaminopimelate-synthase, diaminopimelate-decarboxylase and tetrahydropimelate-synthetase gene localization

L9 ANSWER 89 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
TI Regulation of lysine biosynthesis in Brevibacterium flavum;
enzyme activies measured in extracts from 2 lysine producing strains

L9 ANSWER 90 OF 113 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN

TI New dapC gene from coryneform bacteria, useful when over-expressed for increasing fermentative production of L-amino acids, and also for isolating related sequences.

L9 ANSWER 91 OF 113 LIFESCI COPYRIGHT 2006 CSA on STN
TI MosA, a Protein Implicated in Rhizopine Biosynthesis in Sinorhizobium meliloti L5-30, is a Dihydrodipicolinate Synthase

L9 ANSWER 92 OF 113 LIFESCI COPYRIGHT 2006 CSA on STN
TI The Lysis Protein E of Phi X174 Is a Specific Inhibitor of the MraY-catalyzed Step in Peptidoglycan Synthesis

L9 ANSWER 93 OF 113 LIFESCI COPYRIGHT 2006 CSA on STN
TI Expression in Escherichia coli, purification and kinetic analysis of the aspartokinase and aspartate semialdehyde dehydrogenase from the rifamycin SV-producing Amycolatopsis mediterranei U32

L9 ANSWER 94 OF 113 LIFESCI COPYRIGHT 2006 CSA on STN
TI Characterization of the Sinorhizobium meliloti genes encoding a functional dihydrodipicolinate synthase (dapA) and dihydrodipicolinate reductase (dapB)

L9 ANSWER 95 OF 113 LIFESCI COPYRIGHT 2006 CSA on STN
TI The Dual Biosynthetic Capability of N-Acetylornithine Aminotransferase in Arginine and Lysine Biosynthesis

L9 ANSWER 96 OF 113 LIFESCI COPYRIGHT 2006 CSA on STN
TI Identification and transcriptional analysis of the dapB-ORF2-dapA-ORF4 operon of Corynebacterium glutamicum, encoding two enzymes involved in L-lysine synthesis

L9 ANSWER 97 OF 113 LIFESCI COPYRIGHT 2006 CSA on STN
TI Molecular genetic analysis of the region containing the essential Pseudomonas aeruginosa asd gene encoding aspartate- beta -semialdehyde dehydrogenase

L9 ANSWER 98 OF 113 LIFESCI COPYRIGHT 2006 CSA on STN
TI Metabolic design in the amino-acid-producing bacterium Corynebacterium glutamicum

L9 ANSWER 99 OF 113 LIFESCI COPYRIGHT 2006 CSA on STN
TI A study on the mechanism of action of sceptrin, an antimicrobial agent isolated from the South Pacific sponge Agelas mauritiana

L9 ANSWER 100 OF 113 LIFESCI COPYRIGHT 2006 CSA on STN
TI Analysis of different DNA fragments of Corynebacterium glutamicum complementing dapE of Escherichia coli

L9 ANSWER 101 OF 113 LIFESCI COPYRIGHT 2006 CSA on STN
TI The essential Escherichia coli msgB gene, a multicopy suppressor of a temperature-sensitive allele of the heat shock gene grpE, is identical to dapE.

L9 ANSWER 102 OF 113 LIFESCI COPYRIGHT 2006 CSA on STN
TI Regulation of enzymes of lysine biosynthesis in Corynebacterium glutamicum .

L9 ANSWER 103 OF 113 LIFESCI COPYRIGHT 2006 CSA on STN
TI Chromosomal location and nucleotide sequence of the Escherichia coli dapA gene.

L9 ANSWER 104 OF 113 LIFESCI COPYRIGHT 2006 CSA on STN
TI Expression of genes of Bacillus subtilis lysine biosynthesis in Escherichia coli cells.

L9 ANSWER 105 OF 113 Elsevier BIOBASE COPYRIGHT 2006 Elsevier Science B.V. on STN
TI Pathway analysis and metabolic engineering in Corynebacterium glutamicum

L9 ANSWER 106 OF 113 Elsevier BIOBASE COPYRIGHT 2006 Elsevier Science B.V. on STN
TI Site-specific inactivation of meso-Diaminopimelate-dehydrogenase gene(ddh) in a lysine-producing Brevibacterium lactofermentum

L9 ANSWER 107 OF 113 Elsevier BIOBASE COPYRIGHT 2006 Elsevier Science B.V. on STN
TI Synthesis and testing of heterocyclic analogues of diaminopimelic acid (DAP) as inhibitors of DAP dehydrogenase and DAP epimerase

L9 ANSWER 108 OF 113 BIOTECHNO COPYRIGHT 2006 Elsevier Science B.V. on STN
TI Molecular aspects of lysine, threonine, and isoleucine biosynthesis in Corynebacterium glutamicum

L9 ANSWER 109 OF 113 BIOTECHNO COPYRIGHT 2006 Elsevier Science B.V. on STN
TI Attachment of diaminopimelic acid to bdelloplast peptidoglycan during intraperiplasmic growth of Bdellovibrio bacteriovorus 109J

L9 ANSWER 110 OF 113 CAPLUS COPYRIGHT 2006 ACS on STN
TI Production of L-lysine in genetically engineered coryneform bacteria

L9 ANSWER 111 OF 113 CAPLUS COPYRIGHT 2006 ACS on STN
TI The expression of Escherichia coli diaminopimelate decarboxylase in mouse 3T3 cells

L9 ANSWER 112 OF 113 USPAT2 on STN
TI Staphylococcus aureus polynucleotides and sequences

L9 ANSWER 113 OF 113 USPAT2 on STN
TI Methods for monitoring multiple gene expression

=> d ibib abs 19 7-8, 16 20 21-22, 24, 54 55 58-63, 68, 70-71, 75 78 84 87 102 105 106-108, 110

L9 ANSWER 7 OF 113 USPATFULL on STN

ACCESSION NUMBER:	2005:283230 USPATFULL
TITLE:	Corynebacterium glutamicum genes encoding novel proteins
INVENTOR(S):	Pompejus, Markus, Freinsheim, GERMANY, FEDERAL REPUBLIC OF Kroger, Burkhard, Limburgerhof, GERMANY, FEDERAL REPUBLIC OF Schroder, Hartwig, Nussloch, GERMANY, FEDERAL REPUBLIC OF Zelder, Oskar, Speyer, GERMANY, FEDERAL REPUBLIC OF Haberhauer, Gregor, Limburgerhof, GERMANY, FEDERAL REPUBLIC OF
PATENT ASSIGNEE(S):	BASF Aktiengesellschaft, Ludwigshafen, GERMANY, FEDERAL REPUBLIC OF (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6962989	B1	20051108
APPLICATION INFO.:	US 2000-605703		20000627 (9)

	NUMBER	DATE
PRIORITY INFORMATION:	US 1999-152318P	19990903 (60)
	US 1999-142764P	19990708 (60)

DOCUMENT TYPE:	Utility

FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Moran, Marjorie
LEGAL REPRESENTATIVE: Lahive & Cockfield, LLP, Hanley, Elizabeth A., Laccotripe Zacharakis, Maria
NUMBER OF CLAIMS: 5
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 0 Drawing Figure(s); 0 Drawing Page(s)
LINE COUNT: 16658
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Isolated nucleic acid molecules, designated MCP nucleic acid molecules, which encode novel MCP proteins from Corynebacterium glutamicum are described. The invention also provides antisense nucleic acid molecules, recombinant expression vectors containing MCP nucleic acid molecules, and host cells into which the expression vectors have been introduced. The invention still further provides isolated MCP proteins, mutated MCP proteins, fusion proteins, antigenic peptides and methods for the improvement of production of a desired compound from C. glutamicum based on genetic engineering of MCP genes in this organism.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 8 OF 113 USPATFULL on STN
ACCESSION NUMBER: 2005:280984 USPATFULL
TITLE: Corynebacterium glutamicum genes encoding proteins involved in membrane synthesis and membrane transport
INVENTOR(S): Pompejus, Markus, Freinsheim, GERMANY, FEDERAL REPUBLIC OF
Kroger, Burkhard, Limburgerhof, GERMANY, FEDERAL REPUBLIC OF
Schroder, Hartwig, Nussloch, GERMANY, FEDERAL REPUBLIC OF
Zelder, Oskar, Speyer, GERMANY, FEDERAL REPUBLIC OF
Haberhauer, Gregor, Limburgerhof, GERMANY, FEDERAL REPUBLIC OF
PATENT ASSIGNEE(S): BASF AG, Ludwigshafen, DE, UNITED STATES (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2005244935	A1	20051103
APPLICATION INFO.:	US 2005-82389	A1	20050316 (11)

RELATED APPLN. INFO.: Continuation of Ser. No. US 2000-603024, filed on 23 Jun 2000, PENDING

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1999-19930487	19990701
	DE 1999-19930489	19990701
	DE 1999-19931549	19990708
	DE 1999-19931550	19990708
	DE 1999-19932134	19990709
	DE 1999-19941379	19990831
	DE 1999-19942088	19990903
	DE 1999-19942097	19990903
	US 1999-141031P	19990625 (60)
	US 1999-143262P	19990709 (60)
	US 1999-151281P	19990827 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: LAHIVE & COCKFIELD, LLP., 28 STATE STREET, BOSTON, MA, 02109, US
NUMBER OF CLAIMS: 22
EXEMPLARY CLAIM: 1
LINE COUNT: 11811
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Isolated nucleic acid molecules, designated MCT nucleic acid molecules, which encode novel MCT proteins from Corynebacterium glutamicum are described. The invention also provides antisense nucleic acid molecules, recombinant expression vectors containing MCT nucleic acid molecules, and host cells into which the expression vectors have been introduced. The invention still further provides isolated MCT proteins, mutated MCT proteins, fusion proteins, antigenic peptides and methods for the improvement of production of a desired compound from C. glutamicum based on genetic engineering of MCT genes in this organism.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 16 OF 113 USPATFULL on STN
ACCESSION NUMBER: 2004:317313 USPATFULL
TITLE: Corynebacterium glutamicum genes encoding proteins involved in homeostasis and adaptation
INVENTOR(S): Pompejus, Markus, Freinsheim, GERMANY, FEDERAL REPUBLIC OF
Kroger, Burkhard, Limburgerhof, GERMANY, FEDERAL REPUBLIC OF
Schroder, Hartwig, Nussloch, GERMANY, FEDERAL REPUBLIC OF
Zelder, Oskar, Speyer, GERMANY, FEDERAL REPUBLIC OF
Haberhauer, Gregor, Limburgerhof, GERMANY, FEDERAL REPUBLIC OF
PATENT ASSIGNEE(S): BASF Aktiengesellschaft, GERMANY, FEDERAL REPUBLIC OF (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6831165	B1	20041214
APPLICATION INFO.:	US 2000-602777		20000623 (9)

	NUMBER	DATE
PRIORITY INFORMATION:	US 1999-141031P	19990625 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Horlick, Kenneth R.
ASSISTANT EXAMINER: Wilder, Cynthia
LEGAL REPRESENTATIVE: Lahive & Cockfield LLP, Hanley, Elizabeth A., DiRocco, Lisa M.
NUMBER OF CLAIMS: 15
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 0 Drawing Figure(s); 0 Drawing Page(s)
LINE COUNT: 5143
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Isolated nucleic acid molecules, designated HA nucleic acid molecules, which encode novel HA proteins from Corynebacterium glutamicum are described. The invention also provides antisense nucleic acid molecules, recombinant expression vectors containing HA nucleic acid molecules, and host cells into which the expression vectors have been introduced. The invention still further provides isolated HA proteins, mutated HA proteins, fusion proteins, antigenic peptides and methods for the improvement of production of a desired compound from C. glutamicum based on genetic engineering of HA genes in this organism.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 20 OF 113 USPATFULL on STN
ACCESSION NUMBER: 2004:215462 USPATFULL
TITLE: Genes involved in polysaccharide production and utilization thereof
INVENTOR(S): Asahara, Takayuki, Kawasaki, JAPAN
Yasueda, Hisashi, Kawasaki, JAPAN

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 2004166570	A1	20040826	
APPLICATION INFO.:	US 2004-772271	A1	20040206	(10)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 2003-32075	20030210

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: AJINOMOTO CORPORATE SERVICES, LLC, INTELLECTUAL PROPERTY DEPARTMENT, 1120 CONNECTICUT AVE., N.W., WASHINGTON, DC, 20036
NUMBER OF CLAIMS: 9
EXEMPLARY CLAIM: 1
LINE COUNT: 1180
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB An ability of a methanol-utilizing bacterium to produce a polysaccharide is improved or suppressed using a DNA encoding a protein selected from the group consisting of:

(A) a protein which has the amino acid sequence of SEQ ID NO: 2;

(B) a variant of a protein which has the amino acid sequence of SEQ ID NO: 2 comprising substitution, deletion, insertion or addition of one or several amino acid residues and has an activity for producing a polysaccharide;

(C) a protein which has the amino acid sequence of SEQ ID NO: 4; and

(D) a variant of a protein which has the amino acid sequence of SEQ ID NO: 4 comprising substitution, deletion, insertion or addition of one or several amino acid residues and has an activity for producing a polysaccharide.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 21 OF 113 USPATFULL on STN
ACCESSION NUMBER: 2004:158629 USPATFULL
TITLE: Process for producing l-amino acid and novel gene
INVENTOR(S): Sugimoto, Masakazu, Kawasaki-shi, JAPAN
Nakai, Yuta, Kawasaki-shi, JAPAN
Ito, Hisao, Kawasaki-shi, JAPAN
Kurahashi, Osamu, Kawasaki-shi, JAPAN

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 2004121428	A1	20040624	
APPLICATION INFO.:	US 2002-148898	A1	20020619	(10)
	WO 2000-JP9164		20001222	

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1999-368096	19991224

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C., 1940 DUKE STREET, ALEXANDRIA, VA, 22314
NUMBER OF CLAIMS: 10
EXEMPLARY CLAIM: 1
LINE COUNT: 1205
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A gene coding for fructose phosphotransferase is introduced into a coryneform bacterium having an ability to produce an L-amino acid such

as L-lysine or L-glutamic acid to enhance fructose phosphotransferase activity and thereby improve the L-amino acid producing ability.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 22 OF 113 USPATFULL on STN
ACCESSION NUMBER: 2004:88592 USPATFULL
TITLE: Process for the production of L-lysine using coryneform bacteria
INVENTOR(S): Bathe, Brigitte, Salzkotten, GERMANY, FEDERAL REPUBLIC OF
Hans, Stephan, Osnabrueck, GERMANY, FEDERAL REPUBLIC OF
Pfefferle, Walter, Halle, GERMANY, FEDERAL REPUBLIC OF
PATENT ASSIGNEE(S): Degussa AG, Duesseldorf, GERMANY, FEDERAL REPUBLIC OF, D-40474 (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 2004067562	A1	20040408	
APPLICATION INFO.:	US 2003-630740	A1	20030731	(10)

	NUMBER	DATE	
PRIORITY INFORMATION:	DE 2002-10235028	20020731	
	US 2002-401751P	20020808	(60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C., 1940 DUKE STREET, ALEXANDRIA, VA, 22314
NUMBER OF CLAIMS: 21
EXEMPLARY CLAIM: 1
LINE COUNT: 530
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A process for the production of L-lysine, in which the following steps are carried out:

a) fermentation of the L-lysine producing coryneform bacteria that are at least resistant to diaminopimelic acid analogues, in particular 4-hydroxydiaminopimelic acid;

b) enrichment of the L-lysine in the medium or in the bacterial cells; and optionally

c) isolation of the L-lysine or L-lysine-containing feedstuffs additive from the fermentation broth, so that ≥0 to 100% of the constituents from the fermentation broth and/or from the biomass are present,

and optionally bacteria are used in which in addition further genes of the biosynthesis pathway of L-lysine are enhanced, or bacteria are used in which the metabolic pathways that reduce the formation of L-lysine are at least partially switched off.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 24 OF 113 USPATFULL on STN
ACCESSION NUMBER: 2004:57946 USPATFULL
TITLE: Genes of corynebacterium
INVENTOR(S): Pompejus, Markus, Freinsheim, GERMANY, FEDERAL REPUBLIC OF
Kroger, Burkhard, Limburgerhof, GERMANY, FEDERAL REPUBLIC OF
Zelder, Oskar, Speyer, GERMANY, FEDERAL REPUBLIC OF
Schroder, Hartwig, Nubloch, GERMANY, FEDERAL REPUBLIC OF

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 2004043953	A1	20040304	
APPLICATION INFO.:	US 2003-450055	A1	20030610	(10)
	WO 2000-EP13143		20001222	

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: NIXON & VANDERHYE, PC, 1100 N GLEBE ROAD, 8TH FLOOR, ARLINGTON, VA, 22201-4714
NUMBER OF CLAIMS: 37
EXEMPLARY CLAIM: 1
LINE COUNT: 6534
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Isolated nucleic acid molecules, designated MP nucleic acid molecules, which encode novel MP proteins from Corynebacterium glutamicum are described. The invention also provides antisense nucleic acid molecules, recombinant expression vectors containing MP nucleic acid molecules, and host cells into which the expression vectors have been introduced. The invention still further provides isolated MP proteins, mutated MP proteins, fusion proteins, antigenic peptides and methods for the improvement of production of a desired compound from C. glutamicum based on genetic engineering of MP genes in this organism.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 54 OF 113 USPATFULL on STN
ACCESSION NUMBER: 2003:78586 USPATFULL
TITLE: Method of producing L-lysine
INVENTOR(S): Otsuna, Seiko, Kawasaki-shi, JAPAN
Sugimoto, Masakazu, Kawasaki-shi, JAPAN
Izui, Masako, Kawasaki-shi, JAPAN
Hayakawa, Atsushi, Kawasaki-shi, JAPAN
Nakano, Eiichi, Kawasaki-shi, JAPAN
Kobayashi, Masaki, Kawasaki-shi, JAPAN
Yoshihara, Yasuhiko, Kawasaki-shi, JAPAN
Nakamatsu, Tsuyoshi, Kawasaki-shi, JAPAN
PATENT ASSIGNEE(S): AJINOMOTO CO. INC., Tokyo, JAPAN, 104-8315 (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 2003054506	A1	20030320	
APPLICATION INFO.:	US 2002-226136	A1	20020823	(10)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1997-952976, filed on 8 Dec 1997, ABANDONED A 371 of International Ser. No. WO 1996-JP1511, filed on 5 Jun 1996, UNKNOWN

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1995-140614	19950607

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT PC, FOURTH FLOOR, 1755 JEFFERSON DAVIS HIGHWAY, ARLINGTON, VA, 22202
NUMBER OF CLAIMS: 18
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 14 Drawing Page(s)
LINE COUNT: 2278
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The L-**lysine-producing** ability and the L-**lysine-producing** speed are improved in a **coryneform** bacterium harboring an aspartokinase in which feedback **inhibition** by L-**lysine** and L-threonine is

substantially desensitized, by successively enhancing **DNA** coding for a dihydrodipicolinate reductase, **DNA** coding for a dihydrodipicolinate synthase, **DNA** coding for a **diaminopimelate** decarboxylase, and **DNA** coding for a **diaminopimelate** dehydrogenase.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 55 OF 113 USPATFULL on STN
ACCESSION NUMBER: 2003:71519 USPATFULL
TITLE: Corynebacterium glutamicum genes encoding metabolic pathway proteins
INVENTOR(S): Pompejus, Markus, Freinsheim, GERMANY, FEDERAL REPUBLIC OF
Kroger, Burkhard, Limburgerhof, GERMANY, FEDERAL REPUBLIC OF
Schroder, Hartwig, Nussloch, GERMANY, FEDERAL REPUBLIC OF
Zelder, Oskar, Speyer, GERMANY, FEDERAL REPUBLIC OF
Haberhauer, Gregor, Limburgerhof, GERMANY, FEDERAL REPUBLIC OF
Kim, Jun-Won, Seoul, KOREA, REPUBLIC OF
Lee, Heung-Shick, Seoul, KOREA, REPUBLIC OF
Hwang, Byung-Joon, Seoul, KOREA, REPUBLIC OF

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003049804	A1	20030313
APPLICATION INFO.:	US 2000-746660	A1	20001222 (9)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 2000-606740, filed on 23 Jun 2000, PENDING Continuation-in-part of Ser. No. US 2000-603124, filed on 23 Jun 2000, PENDING

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1999-19931420	19990708
	US 1999-141031P	19990625 (60)
	US 1999-142101P	19990702 (60)
	US 1999-148613P	19990812 (60)
	US 2000-187970P	20000309 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: LAHIVE & COCKFIELD, 28 STATE STREET, BOSTON, MA, 02109
NUMBER OF CLAIMS: 47
EXEMPLARY CLAIM: 1
LINE COUNT: 15004
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Isolated nucleic acid molecules, designated MP nucleic acid molecules, which encode novel MP proteins from Corynebacterium glutamicum are described. The invention also provides antisense nucleic acid molecules, recombinant expression vectors containing MP nucleic acid molecules, and host cells into which the expression vectors have been introduced. The invention still further provides isolated MP proteins, mutated MP proteins, fusion proteins, antigenic peptides and methods for the improvement of production of a desired compound from C. glutamicurn based on genetic engineering of MP genes in this organism.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 58 OF 113 USPATFULL on STN
ACCESSION NUMBER: 2002:164752 USPATFULL
TITLE: METHOD OF PRODUCING L-LYSINE
INVENTOR(S): OTSUNA, SEIKO, KAWASAKI-SHI, JAPAN
SUGIMOTO, MASAKAZU, KAWASAKI-SHI, JAPAN
IZUI, MASAKO, KAWASAKI-SHI, JAPAN

HAYAKAWA, ATSUSHI, KAWASAKI-SHI, JAPAN
NAKANO, EIICHI, KAWASAKI-SHI, JAPAN
KOBAYASHI, MASAKI, KAWASAKI-SHI, JAPAN
YOSHIHARA, YASUHIKO, KAWASAKI-SHI, JAPAN
NAKAMATSU, TSUYOSHI, KAWASAKI-SHI, JAPAN

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 2002086370	A1	20020704	
APPLICATION INFO.:	US 1997-952976	A1	19971208	(8)
	WO 1996-JP1511		19960605	

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1995-140614	19950607

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT PC, FOURTH FLOOR, 1755 JEFFERSON DAVIS HIGHWAY, ARLINGTON, VA, 22202
NUMBER OF CLAIMS: 18
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 14 Drawing Page(s)
LINE COUNT: 2281
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The L-**lysine-producing** ability and the L-**lysine-producing** speed are improved in a **coryneform** bacterium harboring an aspartokinase in which feedback **inhibition** by L-**lysine** and L-threonine is substantially desensitized, by successively enhancing **DNA** coding for a dihydrodipicolinate reductase, **DNA** coding for a dihydrodipicolinate synthase, **DNA** coding for a **diaminopimelate** decarboxylase, and **DNA** coding for a **diaminopimelate** dehydrogenase.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 59 OF 113 USPATFULL on STN
ACCESSION NUMBER: 2001:59658 USPATFULL
TITLE: Method for producing L-lysine
INVENTOR(S): Hayakawa, Atsushi, Kawasaki, Japan
Sugimoto, Masakazu, Kawasaki, Japan
Yoshihara, Yasuhiko, Kawasaki, Japan
Nakamatsu, Tsuyoshi, Kawasaki, Japan
PATENT ASSIGNEE(S): Ajinomoto Co., Inc., Tokyo, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6221636	B1	20010424	
APPLICATION INFO.:	US 1997-985916		19971205	(8)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1996-325658	19961205

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Stole, Einar
LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.
NUMBER OF CLAIMS: 22
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 13 Drawing Figure(s); 13 Drawing Page(s)
LINE COUNT: 1291
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A recombinant **DNA** autonomously replicable in cells of

coryneform bacteria, comprising a **DNA** sequence coding for an aspartokinase in which feedback **inhibition** by L-**lysine** and L-threonine is substantially desensitized, and a **DNA** sequence coding for a **diaminopimelate** decarboxylase; a **coryneform** bacterium harboring an aspartokinase in which feedback **inhibition** by L-**lysine** and L-threonine is substantially desensitized, and comprising an enhanced **DNA** sequence coding for a **diaminopimelate** decarboxylase; and a method for **producing** L-**lysine** comprising the steps of cultivating the **coryneform** bacterium in an appropriate medium to allow L-**lysine** to be **produced** and accumulated in a culture of the bacterium, and collecting L-**lysine** from the culture.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 60 OF 113 USPATFULL on STN

ACCESSION NUMBER:	2000:34406 USPATFULL			
TITLE:	Method of producing L-lysine by fermentation			
INVENTOR(S):	Kojima, Hiroyuki, Kawasaki, Japan Ogawa, Yuri, Kawasaki, Japan Kawamura, Kazue, Kawasaki, Japan Sano, Konosuke, Kawasaki, Japan			
PATENT ASSIGNEE(S):	Ajinomoto Co., Inc., Tokyo, Japan (non-U.S. corporation)			
	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6040160		20000321	
	WO 9516042		19950615	
APPLICATION INFO.:	US 1996-648010		19960529	(8)
	WO 1994-JP1994		19941128	
			19960529	PCT 371 date
			19960529	PCT 102(e) date
	NUMBER		DATE	
PRIORITY INFORMATION:	JP 1993-308397		19931208	
DOCUMENT TYPE:	Utility			
FILE SEGMENT:	Granted			
PRIMARY EXAMINER:	Sisson, Bradley			
ASSISTANT EXAMINER:	Stole, Einar			
LEGAL REPRESENTATIVE:	Oblon, Spivak, McClelland, Maier & Neustadt, P.C.			
NUMBER OF CLAIMS:	22			
EXEMPLARY CLAIM:	1			
NUMBER OF DRAWINGS:	24 Drawing Figure(s); 18 Drawing Page(s)			
LINE COUNT:	3168			

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A bacterium belonging to the genus **Escherichia**, which is transformed by introducing, into its cells, a **DNA** coding for a dihydrodipicolinate synthase originating from a bacterium belonging to the genus **Escherichia** having mutation to desensitize feedback **inhibition** by L-**lysine** and a **DNA** coding for an aspartokinase III originating from a bacterium belonging to the genus **Escherichia** having mutation to desensitize feedback **inhibition** by L-**lysine**; preferably a bacterium belonging to the genus **Escherichia** in which a dihydrodipicolinate reductase **gene** and a **diaminopimelate** dehydrogenase **gene** originating from **Brevibacterium** lactofermentum (or a succinyldiaminopimelate transaminase **gene** and a succinyldiaminopimelate deacylase **gene**) are further enhanced, is cultivated in an appropriate medium, L-**lysine** is **produced** and accumulated in a culture thereof, and L-**lysine** is collected from the culture.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 61 OF 113 USPATFULL on STN
ACCESSION NUMBER: 1999:166814 USPATFULL
TITLE: Method for producing L-lysine
INVENTOR(S): Araki, Masayuki, Kawasaki, Japan
Sugimoto, Masakazu, Kawasaki, Japan
Yoshihara, Yasuhiko, Kawasaki, Japan
Nakamatsu, Tsuyoshi, Kawasaki, Japan
PATENT ASSIGNEE(S): Ajinomoto Co., Inc., Tokyo, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6004773		19991221	
APPLICATION INFO.:	US 1997-985908		19971205	(8)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1996-325659	19961205

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Degen, Nancy
LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.
NUMBER OF CLAIMS: 12
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 14 Drawing Figure(s); 13 Drawing Page(s)
LINE COUNT: 2900
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A **coryneform** bacterium harboring an aspartokinase in which feedback **inhibition** by L-**lysine** and L-threonine is substantially desensitized, and comprising an enhanced **DNA** sequence coding for a dihydrodipicolinate reductase, an enhanced **DNA** sequence coding for dihydropicolinate reductase, an enhance **DNA** sequence coding for dihydropicolinate synthase, an enhanced **DNA** sequence coding for **diaminopimelate** decarboxylase and an enhanced **DNA** sequence coding for aspartate aminotransferase; a method for **producing** L-**lysine** comprising the steps of cultivating the **coryneform** bacterium in an appropriate medium to allow L-**lysine** to be **produced** and accumulated in a culture of the bacterium, and collecting L-**lysine** from the culture; and a recombinant **DNA** usable for **production** of the **coryneform** bacterium.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 62 OF 113 USPATFULL on STN
ACCESSION NUMBER: 1999:150978 USPATFULL
TITLE: Method of process for producing L-lysine by fermentation
INVENTOR(S): Kojima, Hiroyuki, Kawasaki, Japan
Ogawa, Yuri, Kawasaki, Japan
Kawamura, Kazue, Kawasaki, Japan
Sano, Konosuke, Kawasaki, Japan
PATENT ASSIGNEE(S): Ajinomoto Co., Inc., Tokyo, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5989875		19991123	
	WO 9641871		19961227	
APPLICATION INFO.:	US 1998-973461		19980420	(8)
	WO 1996-JP648		19960314	
			19980420	PCT 371 date

19980420 PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1995-146054	19950613

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Wax, Robert A.
ASSISTANT EXAMINER: Mayhew, Bradley S.
LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.
NUMBER OF CLAIMS: 14
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 10 Drawing Figure(s); 9 Drawing Page(s)
LINE COUNT: 1977
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A bacterium belonging to the genus Serratia, which is transformed by introducing into its cells, a DNA coding for a dihydrodipicolinate synthase originating from a bacterium belonging to the genus Escherichia or Serratia having mutation to desensitize feedback inhibition by L-lysine and a DNA coding for an aspartokinase originating from a bacterium belonging to the genus Escherichia or Serratia having mutation to desensitize feedback inhibition by L-lysine is cultivated in an appropriate medium, L-lysine is produced and accumulated in a culture thereof, and L-lysine is collected from the culture.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 63 OF 113 USPATFULL on STN
ACCESSION NUMBER: 93:91554 USPATFULL
TITLE: Method of inducing lysine overproduction in plants
INVENTOR(S): Glassman, Kimberly F., Minneapolis, MN, United States
Barnes, Linda J., Ames, IA, United States
Pilacinski, William P., Maple Grove, MN, United States
PATENT ASSIGNEE(S): Molecular Genetics Research and Development Limited Partnership, Minneapolis, MN, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5258300		19931102	
APPLICATION INFO.:	US 1988-204388		19880609	(7)

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Chereskin, Che S.
LEGAL REPRESENTATIVE: Merchant, Gould, Smith, Edell, Welter & Schmidt
NUMBER OF CLAIMS: 16
EXEMPLARY CLAIM: 9
NUMBER OF DRAWINGS: 2 Drawing Figure(s); 3 Drawing Page(s)
LINE COUNT: 1098
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A method is provided for increasing the level of free L-lysine in a plant comprising: (a) introducing a foreign gene into the cells of a plant tissue source; and (b) expressing said foreign gene in said cells, wherein a first DNA sequence of said gene encodes dihydrodipicolinic acid synthase (DHDPS) which is substantially resistant to feedback inhibition by endogenously-produced free L-lysine.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 68 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
ACCESSION NUMBER: 2005-11410 BIOTECHDS
TITLE: Fermentative preparation of L-lysine-containing product by inoculating and culturing coryneform bacteria in nutrient medium, continuously supplying nutrient medium to culture for producing L-lysine, removing culture broth from culture;

for use in pharmaceutical and food industry

AUTHOR: GERIGK M; HERMANN T; BATHE B; KELLE R
PATENT ASSIGNEE: DEGUSSA AG
PATENT INFO: WO 2005021772 10 Mar 2005
APPLICATION INFO: WO 2004-EP8882 7 Aug 2004
PRIORITY INFO: US 2003-499710 4 Sep 2003; DE 2003-1039847 29 Aug 2003
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 2005-214583 [22]
AN 2005-11410 BIOTECHDS
AB DERWENT ABSTRACT:

NOVELTY - Fermentative preparation (M1) of an L-**lysine**-containing **product** using **coryneform** bacteria which **produce** L-**lysine**, involves inoculating and culturing the bacterium in a first nutrient medium, continuously providing further nutrient medium or media to the culture, where the nutrient medium comprises carbon, nitrogen and phosphorus source, and removing the culture broth from the culture.

DETAILED DESCRIPTION - Fermentative preparation (M1) of an L-**lysine**-containing **product** using **coryneform** bacteria which **produce** L-**lysine**, involves (a) inoculating and culturing the bacterium in at least a first nutrient medium, and (b) continuously providing at least a further nutrient medium or further nutrient media to the culture in one or several feed streams, under conditions which allow the formation of L-**lysine**, where the nutrient medium or the nutrient media comprises at least one source of carbon, at least one source of nitrogen and at least one source of phosphorus, and at the same time culture broth is removed from the culture with at least one or several removal streams, which substantially corresponds/correspond to the feed stream or the total of the feed streams, where over the entire period of time of the providing step, a concentration of the source(s) of carbon of not more than 10 g/l is established, and over the entire period of time of the providing step, the formation of L-**lysine**, based on **lysine** hydrochloride, takes place with an output index (OI)=space/time yield (g/(lxh))xyield(w/w)xconcentration of **lysine** hydrochloride (g/l) of at least 130 g2/(l2xh).

BIOTECHNOLOGY - Preferred Method: In (M1), the culturing step is carried out by the batch process (batch) or by the feed process (fed batch), in which at least one additional nutrient medium is employed. The source of carbon is one or more of the compounds chosen from sucrose, molasses from sugar beet or cane sugar, fructose, glucose, starch hydrolysate, maltose, xylose, acetic acid, ethanol and methanol. The source of nitrogen is one or more of organic nitrogen-containing substances or their mixtures chosen from peptones, yeast extracts, meat extracts, malt extracts, corn steep liquor, soya bean flour and urea and/or one or more of the inorganic compounds chosen from ammonia, ammonium-containing salts and salts of nitric acid. The ammonium-containing salts and salts of nitric acid are ammonium sulfate, ammonium chloride, ammonium phosphate, ammonium carbonate, ammonium nitrate, potassium nitrate and potassium sodium nitrate. The source of phosphorus is alkali metal or alkaline earth metal salts of phosphoric acid or their polymers, or of phytic acid. The alkali metal salts of phosphoric acid are potassium dihydrogen phosphate or dipotassium hydrogen phosphate or the corresponding sodium-containing salts. The feed stream established in step (b) or the sum of the feed streams is fed in at a rate corresponding to an average residence time of at most60, at most55, at most50, at most45, at most35 or at most30 hours. The average residence time is at most35 hours. The rate of the removal stream or the removal streams corresponds to 80-120%, preferably 90-110% of the feed stream or of the sum of the feed streams. The concentration of the source of carbon over the entire period of time of step (b) and/or in the case of prior culturing in the feed process (fed batch), also during the feeding of the additional nutrient medium is not more than 10, 5 or 3 g/l. The culture broth removed is provided with oxygen or an

oxygen-containing gas until the concentration of the source of carbon is not more than 2 g/l, not more than 1 g/l or not more than 0.5 g/l. The yield of the L-**lysine**-containing **product** is (in weight%) (at least 43 or 48) based on the sugar employed. The space/time yield is 2.5 or 3.5 g/(lxh) or more. The concentration of the **lysine** hydrochloride in the fermentation broth led off is at least100, at least110, at least120, at least130 or at least140 g/l. The formation of the L-**lysine**, based on **lysine** hydrochloride, takes place with an output index (OI) of at least 170 or 200 g2/(l2xh). The step (b) is carried out for more than 100 or 200 hours. The nutrient media employed in the step (a) or (b) comprise complex constituents chosen from peptones, yeast extracts, meat extracts, malt extracts, corn steep liquor and soya bean flour. The nutrient media comprises complex constituents (in weight%) (5). The L-**lysine**-containing fermentation broth led off has an osmolarity of not more than 2100, 1800, 1500 or 1200 mosm/l. The L-**lysine**-containing fermentation broth **produced** and led off is prepared as a liquid **product** with 0-100% of the biomass formed in the fermentation after a 10-90% dewatering. The **coryneform** bacterium contains at least one lysC **gene** or allele, which codes for an aspartate kinase that is insensitive towards **inhibition** by **lysine** or mixtures of **lysine** and threonine. The L-**lysine**-**producing coryneform** bacteria have one or more of the features chosen from lysC allele (lysCfbr), hom allele (homleaky), zwf allele, coding for an NADPH-insensitive glucose 6-phosphate dehydrogenase, and pyc allele, coding for a pyruvate carboxylase. The L-**lysine-producing coryneform** bacterium has one or more resistances chosen from azauracilr (Azar), rifamycinr (Rifr) and streptomycinr (Strepr). The L-**lysine-producing coryneform** bacterium has (a) 2 copies of an lysC allele (lysCfbr), a hom allele (homleaky) and 2 copies of a zwf allele, which codes for an NADPH-insensitive glucose 6-phosphate dehydrogenase, or (b) one or more of 3, 4 or 5 copies of an lysC allele (lysCfbr), 2 copies of an lysE **gene**, and 2 copies of a zwal **gene.** The L-**lysine-producing coryneform** bacterium is sensitive towards **diaminopimelic** acid **analogs** chosen from 4-hydroxy-**diaminopimelic** acid, 4-fluoro-**diaminopimelic** acid, 4-oxo-**diaminopimelic** acid and 2,4,6-triaminopimelic acid, preferably 4-hydroxy-**diaminopimelic** acid. The L-**lysine-producing coryneform** bacterium has the ability to divert the carbon flow through the oxidative pentose phosphate pathway with a percentage content of more than 75%, 85%, 95%, 105%, 115%, 125%, 135% or 145%. The L-**lysine**-**producing coryneform** bacterium has the ability to divert the carbon flow through the anaplerotic reactions, based on the sum of pyruvate and phosphoenol pyruvate (PEP), which are converted into oxaloacetate by PEP carboxylase and pyruvate carboxylase, respectively, coded by ppc and pyc, respectively, with a percentage content of more than 19%, 23%, 26%, 28%, 30%, 33%, 35%, or 37%. The L-**lysine**-**producing coryneform** bacterium has the ability to divert the carbon flow into the tricarboxylic acid cycle, based on the acetyl radicals, which are transferred from acetyl-CoA to oxaloacetate by the citrate synthase reaction, with a percentage content of at least 1% but not more than 20%, at least 2% but not more than 18%, or at least 3% but not more than 16%. The L-**lysine-producing coryneform** bacterium has the ability to divert the carbon flow through the **lysine**-resistant aspartate kinase, coded by lysC, with a percentage content of at least 28% but not more than 56%, at least 30% but not more than 54%, at least 32% but not more than 52% or at least 33% but not more than 50%. The L-**lysine-producing coryneform** bacterium has the ability to divert the carbon flow through **diaminopimelate** dehydrogenase, coded by ddh, with a percentage content of at least 49% but not more than 98%, at least 53% but not more than 95%, at least 56% but not more than 91% or at least 58% but not more than 87%. The L-**lysine-producing**

coryneform bacterium has the ability to establish a ratio of the carbon flow through the oxidative pentose phosphate pathway to the carbon flow through the anaplerotic reactions (oxidative pentose phosphate pathway (%)/anaplerotic reactions (%)=PPP/Ana (-)) of at least 3.4 but not more than 4.6, at least 3.5 but not more than 4.5, at least 3.6 but not more than 4.4, or at least 3.7 but not more than 4.3. The L-**lysine-producing coryneform** bacterium has the ability to establish a ratio of the carbon flow through the oxidative pentose phosphate pathway to the carbon flow into the tricarboxylic acid cycle (oxidative pentose phosphate pathway (%)/tricarboxylic acid cycle (%)=PPP/TCA (-)) of at least 7 but not more than 150, at least 10 but not more than 125, at least 13 but not more than 100 or at least 16 but not more than 75. The L-**lysine** contained in the fermentation broth is removed and purified. The fermentation broth led off has a solid content (in weight%) (at least 10, 12.5, 15 or at least 17.5). The fermentation broth led off is concentrated by the removal of water, to obtain L-**lysine**-containing **product** comprising **lysine** (in weight%) (35-80), protein (maximum 7), carboxylic acids (maximum 7), total sugars (maximum 9), fats and oils (maximum 5) and minerals (3-30). After dewatering, the L-**lysine**-containing **product** has a water content (in weight%) (at least 0.5, but not more than 5.0). The concentration of the by-**product** trehalose, ketoglutarate, succinate, malate, oxaloacetate, acetate and pyruvate in the fermentation broth led off is not more than 10, 5, 2 or 0.5 g/l. The concentration of the by-**product** lactate and ethanol in the fermentation broth led off is not more than 8, 4, 2 or 0.5 g/l. The concentration of the by-**product** L-alanine and L-valine in the fermentation broth led off is not more than 5, 2.5, 1 or 0.25 g/l. The concentration of the by-**product** L-glutamate in the fermentation broth led off is not more than 7.5, 5, 2 or 0.5 g/l. The L-**lysine** -containing fermentation broth led off has a total by-**product** concentration of not more than 2.5%, 1% or 0.5%. After dewatering and granulation, the L-**lysine**-containing **product** has an average particle size of 0.1-1.0 mm, 97%, 98% or more. The L-**lysine**-containing **product** has a lactate content (in weight%) (not more than 3, 2, 1, 0.5, or 0.1). After dewatering and granulation, the L-**lysine**-containing **product** has bulk density of at least 600 kg/m3, 650 kg/m2, 700 kg/m3, or at least 750 kg/m3. After dewatering and granulation, the L-**lysine** -containing **product** contains a content of additive added, in particular oil (in weight%) (0.02-2), based on the total amount of L-**lysine**-containing **product**, on the surface. The L-**lysine**-containing **product** contains as an additive one or more of oils chosen from mineral oil, vegetable oils, soya oil, olive oil, soya/lecithin mixtures, edible oils, mixtures of vegetable oils, on the surface.

USE - (M1) is useful for fermentative preparation of an L-**lysine**-containing **product** using **coryneform** bacteria such as **Corynebacterium** (claimed). The L-**lysine produced** by (M1) is useful in pharmaceutical industry, foodstuffs industry and in animal nutrition.

ADVANTAGE - (M1) enables improved fermentative **production** of L-**lysine**. (40 pages)

L9 ANSWER 70 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
ACCESSION NUMBER: 2004-09352 BIOTECHDS
TITLE: Production of L-lysine, comprises fermentation of L-lysine producing coryneform bacteria resistant to diaminopimelic acid analog, enrichment of L-lysine in medium, isolation of L-lysine or its feedstuffs additive from fermentation broth; involving culture medium optimization and fermentation
AUTHOR: BATHE B; HANS S; PFEFFERLE W
PATENT ASSIGNEE: DEGUSSA AG
PATENT INFO: WO 2004013341 12 Feb 2004
APPLICATION INFO: WO 2003-EP7474 10 Jul 2003

PRIORITY INFO: DE 2002-1035028 31 Jul 2002; DE 2002-1035028 31 Jul 2002
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 2004-191378 [18]
AN 2004-09352 BIOTECHDS
AB DERWENT ABSTRACT:
NOVELTY - **Production** (M1) of L-**lysine**, involves fermentation of the L-**lysine producing** **coryneform** bacteria that are at least resistant to **diaminopimelic** acid **analog**, in particular 4-hydroxydiaminopimelic acid, enrichment of the L-**lysine** in the medium or in the bacterial cells, and optionally, isolation of the L-**lysine** or L-**lysine**-containing feedstuffs additive from the fermentation broth.

DETAILED DESCRIPTION - **Production** (M1) of L-**lysine**, involves fermentation of the L-**lysine producing** **coryneform** bacteria that are at least resistant to **diaminopimelic** acid **analog**, in particular 4-hydroxydiaminopimelic acid, enrichment of the L-**lysine** in the medium or in the bacterial cells, and optionally, isolation of the L-**lysine** or L-**lysine**-containing feedstuffs additive from the fermentation broth, such that at least 0-100% of the constituents from the fermentation broth and/or from the biomass are present. INDEPENDENT CLAIMS are also included for the following: (1) mutants of **coryneform** bacteria **producing** L-**lysine** and that are resistant to one or more of the **diaminopimelic** acid **analogs** chosen from 4-fluorodiamino-**pimelic** acid, 4-hydroxydiaminopimelic acid, 4-oxo-**diaminopimelic** acid or 2,4,6-triaminopimelic acid; and (2) feedstuffs additives based on fermentation broth, comprising L-**lysine produced** by (M1) and biomass and/or constituents from the fermentation broth formed during the fermentation of the L-**lysine-producing** microorganisms in an amount of 0-5% or 90-100%.

BIOTECHNOLOGY - Preferred Method: In (M1), the bacteria used comprises **genes** of the biosynthesis pathway of L-**lysine** are enhanced. The bacteria are used in which the metabolic pathways that reduce the formation of L-**lysine** are at least partially switched off. The **production** of L-**lysine** **coryneform** microorganisms are fermented in which at the same time one or more of the **genes** chosen from following group is/are enhanced, in particular overexpressed: the **gene** lysC coding for a feedback-resistant aspartate kinase, the **gene** dapA coding for dihydrodipicolinate synthase, the **gene** gap coding for glyceraldehyde-3-phosphate dehydrogenase, the **gene** pyc coding for pyruvate carboxylase, the **gene** zwf coding for glucose-6-phosphate dehydrogenase, simultaneously the **gene** lysE coding for the **lysine** export protein, the **gene** zwal coding for the Zwal protein, the **gene** lysA coding for **diaminopimelic** acid decarboxylase, the **gene** sigC coding for the sigma factor C, the **gene** tpi coding for triose phosphate isomerase, or the **gene** pgk coding for 3-phosphoglycerate kinase. The **production** of L-**lysine** **coryneform** microorganisms are fermented in which at the same time one or more of the **genes** chosen from the following group is/are attenuated: the pck **gene** coding for phosphoenol pyruvate carboxykinase, the pgi **gene** coding for glucose-6-phosphate-isomerase, the **gene** deaD coding for **DNA** helicase, the **gene** citE coding for citrate lysase, the **gene** menE coding for O-succinylbenzoic acid CoA-ligase, the **gene** mikE17 coding for the transcription regulator MikE17, the **gene** poxB coding for pyruvate oxidase, or the **gene** zwa2 coding for the Zwa2 protein. The mutants of **coryneform** bacteria are used that **produce** L-**lysine** and that are resistant to one or more of the **diaminopimelic** acid **analogs**.

USE - (M1) is useful for **producing** L-**lysine**,

where the microorganisms of the species **Corynebacterium glutamicum** are used that are resistant to 4-hydroxydiaminopimelic acid (claimed).

ADVANTAGE - (M1) is an improved process for the fermentative **production** of L-**lysine**.

EXAMPLE - To **produce** L-**lysine**, the following test was done. The **Corynebacterium glutamicum** strain DSM 15662Hdapr obtained was cultured in a nutrient medium suitable for the **production** of **lysine** and the **lysine** content in the culture supernatant was determined. The strains were first of all incubated on agar plates for 24 hours at 33 degrees C. Using this agar plate culture a preculture was inoculated (10 ml of medium in a 100 ml Erlenmeyer flask). The medium MM was used as medium for the preculture. The preculture was incubated for 24 hours at 33 degrees C at 240 rpm on a vibrator. Using this preculture a main culture was inoculated such that the initial optical density (OD-660 nm) of the main culture was 0.1 OD. The medium MM was also used for the main culture. Culturing was carried out in a 10 ml volume in a 100 ml Erlenmeyer flask equipped with baffles. The culturing was carried out at 33 degrees C and 80% atmospheric humidity. After 72 hour, the OD was determined at a measurement wavelength of 660 nm with a Biomek 1000 instrument. The amount of **lysine** formed was determined by ion exchange chromatography and post-column derivatisation with ninhydrin detection, using an amino acid **analyzer** from Eppendorf-BioTronik. The result showed that high levels of L-**lysine** was **produced** by DSM 15662Hdapr (18.9 g/l) than the control DSM 15662 (16.2 g/l). (25 pages)

L9 ANSWER 71 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
ACCESSION NUMBER: 2004-08783 BIOTECHDS
TITLE: Producing L-lysine by fermenting L-lysine producing coryneform bacteria sensitive to 4-hydroxydiaminopimelate, adding L-lysine in medium/bacterial cell, optionally isolating L-lysine/L-lysine-containing feedstuff additive; involving Corynebacterium glutamicum fermentation
AUTHOR: BATHE B; REYNEN C; PFEFFERLE W
PATENT ASSIGNEE: DEGUSSA AG
PATENT INFO: WO 2004013340 12 Feb 2004
APPLICATION INFO: WO 2003-EP7475 10 Jul 2003
PRIORITY INFO: DE 2002-1035029 31 Jul 2002; DE 2002-1035029 31 Jul 2002
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 2004-157137 [15]
AN 2004-08783 BIOTECHDS
AB DERWENT ABSTRACT:

NOVELTY - **Producing** (M1) L-**lysine** by fermenting L-**lysine producing coryneform** bacteria that are at least sensitive to **diaminopimelate analogues**, preferably 4-hydroxydiaminopimelate, enriching L-**lysine** in medium or in bacterial cells, and optionally, isolating L-**lysine** or L-**lysine**-containing feedstuffs additive from fermentation broth, where /- 0 to 100% of constituents from the fermentation broth and/or from biomass are present.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following: (1) mutants of **coryneform** bacteria **producing** L-**lysine** and that are sensitive to one or more of the **diaminopimelate analogues** chosen from 4-fluorodiaminopimelate, 4-oxo-**diaminopimelate** and 2,4,6-triaminopimelate; and (2) feedstuffs additives based on fermentation broth, containing L-**lysine produced** by (M1), the biomass and/or constituents from the fermentation broth formed during the fermentation of the L-**lysine-producing** microorganisms in an amount of 0-5% or 90-100%.

BIOTECHNOLOGY - Preferred Method: In (M1), the bacteria used for **producing** L-**lysine**, contains enhanced additional

genes of the biosynthesis pathway of L-**lysine** or metabolic pathways that reduce the formation of L-**lysine** in bacteria are at least partially switched off. The **production** of L-**lysine** by **coryneform** microorganisms are fermented in which at the same time one or more **genes** is/are enhanced, preferably overexpressed, where the enhanced **gene** is chosen from the **gene** lysC coding for a feedback-resistant aspartate kinase, the **gene** dapA coding for dihydrodipicolinate synthase, the **gene** gap coding for glyceraldehyde-3-phosphate dehydrogenase, the **gene** pyc coding for pyruvate carboxylase, the **gene** zwf coding for glucose-6-phosphate dehydrogenase, simultaneously the **gene** lysE coding for the **lysine** export protein, the **gene** zwa1 coding for the Zwa1 protein, the **gene** lysA coding for **diaminopimelate** decarboxylase, the **gene** sigC coding for the sigma factor C, the **gene** tpi coding for triose phosphate isomerase and the **gene** pgk coding for 3-phosphoglycerate kinase, or one or more **genes** is/are attenuated, where the attenuated **gene** is chosen from the pck **gene** coding for phosphoenol pyruvate carboxykinase, pgi **gene** coding for glucose-6-phosphate-isomerase, **gene** deaD coding for **DNA** helicase, **gene** citE coding for citrate lysase, **gene** menE coding for O-succinybenzoic acid CoA-ligase, **gene** mikE17 coding for the transcription regulator MikE17, **gene** poxB coding for pyruvate oxidase and **gene** zwa2 coding for the Zwa2 protein. The microorganism **producing** L-**lysine** is **Corynebacterium glutamicum**, which is sensitive to 4-hydroxydiaminopimelate.

USE - (M1) Is useful for **producing** L-**lysine** by **Corynebacterium glutamicum**, which is sensitive to 4-hydroxydiaminopimelate (claimed).

ADVANTAGE - (M1) Is efficient in **producing** L-**lysine** by **Corynebacterium glutamicum**, which is sensitive to 4-hydroxydiaminopimelate.

EXAMPLE - **Corynebacterium glutamicum** strain DSM13994 was **produced** by multiple, untargeted mutagenesis, of C. **glutamicum** ATCC13032. The mutant sensitive to 4-hydroxydiaminopimelate were screened by plating C. **glutamicum** DSM13994 on LB agar plates containing 10 g/l of 4-hydroxydiaminopimelate. The growth of the colonies were observed over 48 hours. At this concentration mutants sensitive to 4-hydroxydiaminopimelate was differentiated from the unaltered parent strain by a delayed growth. A clone was identified as DSM13994Hdaps, that exhibited a substantially delayed growth compared to DSM13994. The obtained C. **glutamicum** strain DSM13994Haps was cultured in medium MM containing 5 g/l of corn steep liquor (CSL), 20 g/l of morpholinopropanesulfonate (MOPS), 50 g/l of glucose, 25 g/l of diammonium sulfate, 0.1 g/l of potassium dihydrogen phosphate, 1.0 g/l of magnesium sulfate, 10 mg/l calcium chloride, 10 mg/l ferrous sulfate, 5.0 mg/l manganese sulfate, 0.3 mg/l biotin, 0.2 mg/l of thiamine, 25 g/l calcium carbonate for 24 hours at 33 degreesC. Using the agar plate culture, a preculture was inoculated in 100 ml medium MM and incubated for 24 hours at 33 degreesC at 240 rpm on a vibrator. Then main culture was inoculated and incubated so that the initial optimal density (OD-660 nm) of the main culture was 0.1 OD. After 72 hours, the OD and the amount of **lysine** formed was determined by ion exchange chromatography. On **analysis**, DSM13994 **produced** 18.9 g/l of **lysine** while DSM13994Hdaps **produced** 19.6 g/l of **lysine** efficiently.(22 pages)

L9 ANSWER 75 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
ACCESSION NUMBER: 1998-09269 BIOTECHDS
TITLE: Recombinant DNA autonomously replicable in coryneform bacteria;
used to produce L-lysine, codes for e.g. aspartokinase, dihydropicolinate-reductase and synthase and diaminopimelate-decarboxylase

AUTHOR: Araki M; Sugimoto M; Yoshihara Y; Nakamatsu T
PATENT ASSIGNEE: Ajinomoto
LOCATION: Tokyo, Japan.
PATENT INFO: EP 854189 22 Jul 1998
APPLICATION INFO: EP 1997-121443 5 Dec 1997
PRIORITY INFO: JP 1996-325659 5 Dec 1996
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 1998-379060 [33]
AN 1998-09269 BIOTECHDS
AB A recombinant **DNA** autonomously replicable in cells of **coryneform** bacteria (CB) is claimed comprising a **DNA** sequence encoding: an aspartokinase (EC-2.7.2.4) (AK) in which feedback **inhibition** by L-**lysine** and L-threonine is desensitized; a dihydrodipicolinate-reductase (EC-1.3.1.26) (DHPR); a dihydropicolinate-synthase (EC-4.2.1.52) (DHPS); a **diaminopimelate**-decarboxylase (EC-4.1.1.20) (DAMD); and an aspartate-aminotransferase (EC-2.6.1.10) (AAT). Also claimed is: (a) a CB harbouring an AK in which feedback **inhibition** by L-**lysine** and L-threonine is desensitized, comprising enhanced **DNA** sequences coding for DHPR, DHPS, DAMD and AAT; **producing** L-**lysine** by culturing CB as in (a) in an appropriate medium to **produce**, accumulate and collect L-**lysine**; **DNA** coding for a protein of disclosed protein sequence; and a vector plasmid pVK7 which is autonomously replicable in cells of **Escherichia coli** and **Brevibacterium** lactofermentum, and comprising a multiple cloning site and lacZ. The **products** can be used for improving L-**lysine** **productivity** by CB. The L-**lysine** **produced** can be used as a feed-additive. (59pp)

L9 ANSWER 78 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
ACCESSION NUMBER: 1997-02208 BIOTECHDS
TITLE: L-lysine production by culture of transformant Corynebacterium;
Brevibacterium lactofermentum recombinant aspartokinase expression in B. lactofermentum using vector plasmid pCAB, for reduced feedback inhibition
AUTHOR: Otsuna S; Sugimoto M; Izui M; Hayakawa A; Nakano E; Kobayashi M; Yoshihara Y; Nakamatsu T
PATENT ASSIGNEE: Ajinomoto
LOCATION: Tokyo, Japan.
PATENT INFO: WO 9640934 19 Dec 1996
APPLICATION INFO: WO 1996-JP1511 5 Jun 1996
PRIORITY INFO: JP 1995-140614 7 Jun 1995
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
OTHER SOURCE: WPI: 1997-052331 [05]
AN 1997-02208 BIOTECHDS
AB A new recombinant **DNA** sequence functional in **Corynebacterium** contains **DNA** encoding an aspartokinase (EC-2.7.2.4) in which feedback **inhibition** by L-**lysine** and L-threonine has been substantially reduced, together with **DNA** encoding for dihydropicolinate-reductase. At least 1 of the following may also be present: **DNA** encoding dihydropicolinate-synthase; **DNA** encoding **diaminopimelate**-decarboxylase (EC-4.1.1.20); or **DNA** encoding **diaminopimelate** -dehydrogenase (EC-1.4.1.16) Preferably, the aspartokinase is derived from **Brevibacterium** lactofermentum (ATCC 13869) aspartokinase (of specified **DNA** sequence). Preferred **DNA** sequences for the reductase, synthase, decarboxylase, and dehydrogenase are specified. Also claimed are **Corynebacterium** hosts transformed with the above **DNA**, and the **production** of L-**lysine** by culture of the transformants. L-**lysine** **production** by fermentation with an improved yield and a lower

fall-off of **production** rate with culture time is achieved. In an example, culture of B. lactofermentum, transformed by plasmid pCAB, at 31.5 deg **produced** 23.0 g/l L-**lysine** after 40 hr, and 45.0 g/l after 72 hr. (90pp)

L9 ANSWER 84 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
ACCESSION NUMBER: 1991-08786 BIOTECHDS
TITLE: Control of the lysine biosynthesis sequence in Corynebacterium glutamicum as analyzed by overexpression of the individual corresponding genes; feedback inhibition resistant aspartate-kinase and dihydrodipicolinate-synthase gene cloning and expression
AUTHOR: Cremer J; *Eggeling L; Sahm H
CORPORATE SOURCE: Kernforsch.Juelich
LOCATION: Institut fuer Biotechnologie 1 des Forschungszentrums Juelich GmbH, D-5170 Juelich, Germany.
SOURCE: Appl.Environ.Microbiol.; (1991) 57, 6, 1746-52
CODEN: AEMIDF
DOCUMENT TYPE: Journal
LANGUAGE: English
AN 1991-08786 BIOTECHDS
AB A **gene** cluster encoding feedback **inhibition** resistant aspartate-kinase (EC-2.7.2.4, lysC-alpha and lysC-beta) and aspartate-semialdehyde-dehydrogenase (EC-1.2.1.11, asd) was cloned from the mutant **Corynebacterium glutamicum** MH20-22B. A fragment was isolated for separate expression of the kinase without asd **production** in wild-type C. **glutamicum** ATCC 1302, and was compared with other clones over-expressing each of the 6 **genes** converting aspartic acid to **lysine.** Over-expression of the kinase was sufficient alone to achieve **lysine** formation (38 mM). Also, over-expression of dihydrodipicolinate-synthase (EC-4.2.1.52) resulted in **lysine** formation, but in a lower amount (11 mM). The other 4 enzymes (asd, dihydrodipicolinate-reductase (EC-1.3.1.26), **diaminopimelate** -dehydrogenase (EC-1.4.1.16) and **diaminopimelate**-decarboxylase (EC-4.1.1.20)) had no effect on **lysine** secretion. When both relevant enzymes were expressed together from plasmid pJC50, a further increase in **lysine** yield was obtained. This information may be useful in **lysine production** strain improvement. (38 ref)

L9 ANSWER 87 OF 113 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN
ACCESSION NUMBER: 1989-02067 BIOTECHDS
TITLE: Cloning and sequencing of the meso-diaminopimelate-D-dehydrogenase (ddh) gene of Corynebacterium glutamicum; involved in lysine biosynthesis
AUTHOR: Ishino S; Mizukami T; Yamaguchi K; Katsumata R; Araki K
LOCATION: Tokyo Research Laboratories, Kyowa Hakko Kogyo Co., Ltd., Machida-shi, Tokyo 194, Japan.
SOURCE: Agric.Biol.Chem.; (1988) 52, 11, 2903-09
CODEN: ABCHA6
DOCUMENT TYPE: Journal
LANGUAGE: English
AN 1989-02067 BIOTECHDS
AB The ddh **gene** of **Corynebacterium glutamicum** KY10755 encoding meso-**diaminopimelate**- (meso-DAP)-D-dehydrogenase (DDH, EC-1.4.1.16) involved in **lysine** biosynthesis was cloned in a DAP auxotroph (dapD4) of **Escherichia coli** TM132 by complementation of the DAP auxotroph. Localization of the **gene** by deletion **analysis** revealed that a 1.7 kb XhoI-KpnI fragment contained the ddh **gene.** The specific activity of DDH was increased 14-fold when C. **glutamicum** RRL-5 was transformed with a recombinant plasmid pCD2 harboring the ddh **gene**, probably due to the **gene** dosage effect. The ddh **gene** was sequenced, and the initiation codon for the open reading

frame was determined to be the ATG at 783. The coding region consisted of 960 nucleotides, corresponding to a protein of 320 amino acid residues. The NH2-terminal residue of the purified DDH was threonine, suggesting that the first methionine residue is removed after the initiation of translation. Upstream from the coding region a potential Shine-Delgarno sequence was observed, preceded by promoter-like sequences. The introduction of the **gene** into some **lysine-producing** mutants is in progress. (31 ref)

L9 ANSWER 102 OF 113 LIFESCI COPYRIGHT 2006 CSA on STN
ACCESSION NUMBER: 88:95908 LIFESCI
TITLE: Regulation of enzymes of lysine biosynthesis in Corynebacterium glutamicum .
AUTHOR: Cremer, J.; Treptow, C.; Eggeling, L.; Sahm, H.
CORPORATE SOURCE: Inst. Biotechnol., Kernforschungsanlage Juelich GmbH, PF 1913, D-5170, FRG
SOURCE: J. GEN. MICROBIOL., (1988) vol. 134, no. 12, pp. 3221-3229.
DOCUMENT TYPE: Journal
FILE SEGMENT: J
LANGUAGE: English
SUMMARY LANGUAGE: English
AB The regulation of the six enzymes responsible for the conversion of aspartate to **lysine**, together with homoserine dehydrogenase, was studied in **Corynebacterium glutamicum** . In addition to aspartate kinase activity, the **synthesis** of **diaminopimelate** decarboxylase was also found to be regulated. The specific activity of this enzyme was reduced to one-third in extracts of cells grown in the presence of **lysine.** Homoserine dehydrogenase was repressed by methionine (to 15% of its original activity) and **inhibited** by threonine (4% remaining activity). The twofold increase in homoserine dehydrogenase activity resulted in a decrease in **lysine** formation accompanied by the formation of isoleucine. In contrast, repression of homoserine dehydrogenase resulted in increased **lysine** formation. A similar increase of the flow of aspartate semialdehyde to **lysine** was found in strains with increased dihydrodipicolinate synthase activity, constructed by introducing the dapA **gene** of **Escherichia coli** (coding for the synthase) into C. **glutamicum** .

L9 ANSWER 105 OF 113 Elsevier BIOBASE COPYRIGHT 2006 Elsevier Science B.V. on STN
ACCESSION NUMBER: 2000242037 ESBIOBASE
TITLE: Pathway analysis and metabolic engineering in Corynebacterium glutamicum
AUTHOR: Sahm H.; Eggeling L.; de Graaf A.A.
CORPORATE SOURCE: H. Sahm, Institut fur Biotechnologie 1, Forschungszentrum Julich GmbH, D-52425 Julich, Germany.
SOURCE: Biological Chemistry, (2000), 381/9-10 (899-910), 64 reference(s)
CODEN: BICHF3 ISSN: 1431-6730
DOCUMENT TYPE: Journal; General Review
COUNTRY: Germany, Federal Republic of
LANGUAGE: English
SUMMARY LANGUAGE: English
AB The Gram-positive bacterium **Corynebacterium glutamicum** is used for the industrial **production** of amino acids, e.g. of L-glutamate and L-**lysine.** During the last 15 years, **genetic** engineering and amplification of **genes** have become fascinating methods for studying metabolic pathways in greater detail and for the construction of strains with the desired genotypes. In order to obtain a better understanding of the central metabolism and to quantify the in vivo fluxes in C. **glutamicum**, the [.sup.1.sup.3C]-labelling technique was combined with metabolite balancing to achieve a unifying comprehensive pathway **analysis.**

These methods can determine the flux distribution at the branch point between glycolysis and the pentose phosphate pathway. The in vivo fluxes in the oxidative part of the pentose phosphate pathway calculated on the basis of intracellular metabolite concentrations and the kinetic constants of the purified glucose-6-phosphate and 6-phosphogluconate dehydrogenases determined in vitro were in full accordance with the fluxes measured by the [.sup.1.sup.3C]-labelling technique. These data indicate that the oxidative pentose phosphate pathway in C. **glutamicum** is mainly regulated by the ratio of NADPH/NADP concentrations and the specific activity of glucose-6-phosphate dehydrogenase. The carbon flux via the oxidative pentose phosphate pathway correlated with the NADPH demand for L-**lysine** **synthesis.** Although it has **generally** been accepted that phosphoenolpyruvate carboxylase fulfills a main anaplerotic function in C. **glutamicum**, we recently detected that a biotin-dependent pyruvate carboxylase exists as a further anaplerotic enzyme in this bacterium. In addition to the activities of these two carboxylases three enzymes catalysing the decarboxylation of the C4 metabolites oxaloacetate or malate are also present in this bacterium. The individual flux rates at this complex anaplerotic node were investigated by using [.sup.1.sup.3C]-labelled substrates. The results indicate that both carboxylation and decarboxylation occur simultaneously in C. **glutamicum** so that a high cyclic flux of oxaloacetate via phosphoenolpyruvate to pyruvate was found. Furthermore, we detected that in C. **glutamicum** two biosynthetic pathways exist for the **synthesis** of DL-**diaminopimelate** and L-**lysine.** As shown by NMR spectroscopy the relative use of both pathways in vivo is dependent on the ammonium concentration in the culture medium. Mutants defective in one pathway are still able to **synthesise** enough L-**lysine** for growth, but the L-**lysine** yields with overproducers were reduced. The luxury of having these two pathways gives C. **glutamicum** an increased flexibility in response to changing environmental conditions and is also related to the essential need for DL-**diaminopimelate** as a building block for the **synthesis** of the murein sacculus.

L9 ANSWER 106 OF 113 Elsevier BIOBASE COPYRIGHT 2006 Elsevier Science B.V. on STN

ACCESSION NUMBER: 1998275992 ESBIOBASE

TITLE: Site-specific inactivation of meso-Diaminopimelate-dehydrogenase gene(ddh) in a lysine-producing Brevibacterium lactofermentum

AUTHOR: Kim O.-M.; Park S.-H.; Lee K.-R.

CORPORATE SOURCE: K.-R. Lee, Department of Food and Nutrition, Yeungnam University, Gyeungsan 712-749, South Korea. E-mail: Krlee@ynucc.yeungnam.ac.kr

SOURCE: Korean Journal of Applied Microbiology and Biotechnology, (1998), 26/5 (387-392), 26 reference(s) CODEN: SMHAEH ISSN: 0257-2389

DOCUMENT TYPE: Journal; Article

COUNTRY: Korea, Republic of

LANGUAGE: Korean

SUMMARY LANGUAGE: English; Korean

AB **Brevibacterium** lactofermentum, a gram-positive bacteria, has both the **diaminopimelate** (DAP) pathway and meso-DAP-dehydrogenase (DDH) pathway for L- **lysine** biosynthesis. To investigate importance of DDH pathway and the related ddh **gene** in **lysine production**, we introduced site-specific mutagenesis technique. A 300 bp **DNA** fragment central to the meso-DAP-dehydrogenase **gene** (ddh) of B. lactofermentum was used to inactive chromosomal ddh **gene** via homologous recombination. Southern hybridization **analysis** confirmed that the chromosomal ddh **gene** was disrupted by the vector sequence. The B. lactofermentum ddh mutant obtained have an inactive DDH pathway. The results reveal that inactivation of the ddh **gene** in B.

lactofermentum leads to dramatic reduction of **lysine production** as well as decrease of the growth rate, indicating that the DDH pathway is essential for high-level **lysine production** as well as biosynthesis of meso-DAP.

L9 ANSWER 107 OF 113 Elsevier BIOBASE COPYRIGHT 2006 Elsevier Science B.V. on STN
ACCESSION NUMBER: 1994125471 ESBIOBASE
TITLE: Synthesis and testing of heterocyclic analogues of diaminopimelic acid (DAP) as inhibitors of DAP dehydrogenase and DAP epimerase
AUTHOR: Abbott S.D.; Lane-Bell P.; Sidhu K.P.S.; Vederas J.C.
CORPORATE SOURCE: J.C. Vederas, Department of Chemistry, University of Alberta, Edmonton, Alta. T6G 2G2, Canada.
SOURCE: Journal of the American Chemical Society, (1994), 116/15 (6513-6520)
CODEN: JACSAT ISSN: 0002-7863
DOCUMENT TYPE: Journal; Article
COUNTRY: United States
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Substrate **analogues** were **synthesized** and examined as **inhibitors** of **diaminopimelic** acid (DAP) dehydrogenase from Bacillus sphaericus and of DAP epimerase from **Escherichia coli**. These enzymes **produce** meso-DAP (3) (a precursor for L-**lysine** and for peptidoglycan) from L-tetrahydrodipicolinic acid (1) and LL-DAP (2), respectively. The epimerase was purified by an improved procedure and confirmed to require both carboxyl and both amino groups for substrate recognition using deuterium-exchange experiments with DAP isomers, L-**lysine**, D-**lysine**, L-α-aminopimelate, and racemic α-aminopimelate. An imidazole **analogue** of DAP (2S)-2-amino-3-(4-carboxyimidazol-1-yl)propanoic acid (4), was **synthesized** by condensation of benzyl imidazole-4-carboxylate (8) with N-benzyloxycarbonyl(Cbz)-L-serine β-lactone (9) (**product** structure confirmed by X-ray **analysis**) followed by hydrogenolytic deprotection. Two other **analogues**, (2S,5'R)-2-amino-3-(3-carboxy-2-isoxazolin-5-yl)propanoic acid (5) and its 5'S diastereomer 6, were prepared by condensation of methyl N-Cbz-L-allylglycinate (13) with methyl chlorooximidoacetate (14) followed by separation of isomers and deprotection with NaOH and Me.sub.3SiCl/NaI. Similar condensation of ethyl chlorooximidoacetate with ethylene and of 14 with ethyl acrylate **generated** isoxazolines, which were saponified to 2-isoxazoline-3-carboxylic acid (25) and 2-isoxazoline-3,5-dicarboxylic acid (26), respectively. None of the compounds show significant **inhibition** of DAP epimerase or DAP dehydrogenase with the exception of 6, which is a potent and specific **inhibitor** of DAP dehydrogenase. At pH 7.5 or 7.8, compound 6 shows competitive **inhibition** (K(i) = 4.2 μM) with tetrahydrodipicolinic acid (1) for the forward reaction and noncompetive **inhibition** (K(i) = 23 μM) with meso-DAP (3) for the reverse process. Preliminary tests for antimicrobial activity demonstrate that 6 **inhibits** the growth of B. sphaericus, which relies exclusively on DAP dehydrogenase to **produce** 3.

L9 ANSWER 108 OF 113 BIOTECHNO COPYRIGHT 2006 Elsevier Science B.V. on STN
ACCESSION NUMBER: 1993:24153275 BIOTECHNO
TITLE: Molecular aspects of lysine, threonine, and isoleucine biosynthesis in Corynebacterium glutamicum
AUTHOR: Eikmanns B.J.; Eggeling L.; Sahm H.
CORPORATE SOURCE: Institut fur Biotechnologie, Forschungszentrum Julich GmbH,D-52425 Julich, Germany.
SOURCE: Antonie van Leeuwenhoek, International Journal of General and Molecular Microbiology, (1993-1994), 64/2 (145-163)

CODEN: ALJMAO ISSN: 0003-6072
DOCUMENT TYPE: Journal; General Review
COUNTRY: Netherlands
LANGUAGE: English
SUMMARY LANGUAGE: English
AN 1993:24153275 BIOTECHNO
AB The Gram-positive bacterium **Corynebacterium glutamicum** is used for the industrial **production** of amino acids, e.g. of L-glutamate and L-**lysine**. In the last ten years **genetic** engineering methods were developed for C. **glutamicum** and consequently, recombinant **DNA** technology was employed to study the biosynthetic pathways and to improve the amino acid **productivity** by manipulation of enzymatic, transport and regulatory functions of this bacterium. The present review summarizes the current knowledge on the **synthesis** and overproduction of the aspartate derived amino acids L-**lysine**, L-threonine and L-isoleucine in C. **glutamicum**. A special feature of C. **glutamicum** is its ability to convert the **lysine** intermediate piperideine-2,6-dicarboxylate to **diaminopimelate** by two different routes, i.e. by reactions involving succinylated intermediates or by the single reaction of **diaminopimelate** dehydrogenase. The flux distribution over the two pathways is regulated by the ammonium availability. The overall carbon flux from aspartate to **lysine**, however, is governed by feedback-control of the aspartate kinase and by the level of dihydrodipicolinate synthase. Consequently, expression of lysC(FBR) encoding a deregulated aspartate kinase and/or the overexpression of dapA encoding dihydrodipicolinate synthase led to overproduction of **lysine**. As a further specific feature C. **glutamicum** possesses a specific **lysine** export carrier which shows high activity in **lysine** overproducing mutants. Threonine biosynthesis is in addition to control by the aspartate kinase tightly regulated at the level of homoserine dehydrogenase which is subject to feedback-**inhibition** and to repression. C. **glutamicum** strains possessing a deregulated aspartate kinase and a deregulated homoserine dehydrogenase **produce lysine** and threonine. Amplification of deregulated homoserine dehydrogenase in such strains led to an almost complete redirection of the carbon flux to threonine. For a further flux from threonine to isoleucine the allosteric control of threonine dehydratase and of the acetohydroxy acid synthase are important. The expression of the **genes** encoding the latter enzyme is additionally regulated at the transcriptional level. By addition of 2-oxobutyrate as precursor and by bypassing the expression control of the acetohydroxy acid synthase **genes** high isoleucine overproduction can be obtained.

L9 ANSWER 110 OF 113 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1997:803726 CAPLUS
DOCUMENT NUMBER: 128:60792
TITLE: Production of L-lysine in genetically engineered coryneform bacteria
INVENTOR(S): Hirano, Seiko; Sugimoto, Masakazu; Nakano, Eiichi; Izui, Masako; Hayakawa, Atsushi; Yoshihara, Yasuhiko; Nakamatsu, Tsuyoshi
PATENT ASSIGNEE(S): Ajinomoto Co., Inc., Japan
SOURCE: Eur. Pat. Appl., 63 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 811682	A2	19971210	EP 1997-108764	19970602
EP 811682	A3	19980610		

EP 811682 B1 20040121
R: DE, DK, ES, FR, GB, IT, NL
JP 09322774 A2 19971216 JP 1996-142812 19960605
US 6090597 A 20000718 US 1997-852730 19970507
ES 2214567 T3 20040916 ES 1997-108764 19970602
PL 186081 B1 20031031 PL 1997-320324 19970603
CN 1171442 A 19980128 CN 1997-112960 19970605
BR 9703475 A 19980929 BR 1997-3475 19970605
PRIORITY APPLN. INFO.: JP 1996-142812 A 19960605

AB L-**Lysine productivity** and production rate are improved by sustaining in **corynebacteria** the aspartokinase (**gene** lysC) wherein feedback **inhibition** by L-**lysine** and L-threonine has been substantially remitted and successively potentiating a **DNA** encoding dihydrodipicolinate reductase (**gene** dapB), a **DNA** encoding dihydrodipicolinate **synthetase** (**gene** dapA), a **DNA** encoding **diaminopimelate** decarboxylase (**gene** lysA), and a **DNA** encoding **diaminopimelate** dehydrogenase (**gene** ddh). Plasmid pCABDL carrying the mutant gene lysC and genes dapA, dapB, ddh, and lysA was prepared and introduced into Brevibacterium lactofermentum strain AJ11082. The transformants were able to grow well and produce lysine 26.5 g/L after 40-h culture, as compared to 22.0 of that of the parental strain.

=>
=>
Connection closed by remote host

Connecting via Winsock to STN

Welcome to STN International! Enter x:x

LOGINID:ssspta1652dmr

PASSWORD:
TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * * * * * * Welcome to STN International * * * * * * * * * *

NEWS 1		Web Page URLs for STN Seminar Schedule - N. America
NEWS 2		"Ask CAS" for self-help around the clock
NEWS 3	JAN 17	Pre-1988 INPI data added to MARPAT
NEWS 4	FEB 21	STN AnaVist, Version 1.1, lets you share your STN AnaVist visualization results
NEWS 5	FEB 22	The IPC thesaurus added to additional patent databases on STN
NEWS 6	FEB 22	Updates in EPFULL; IPC 8 enhancements added
NEWS 7	FEB 27	New STN AnaVist pricing effective March 1, 2006
NEWS 8	MAR 03	Updates in PATDPA; addition of IPC 8 data without attributes
NEWS 9	MAR 22	EMBASE is now updated on a daily basis
NEWS 10	APR 03	New IPC 8 fields and IPC thesaurus added to PATDPAFULL
NEWS 11	APR 03	Bibliographic data updates resume; new IPC 8 fields and IPC thesaurus added in PCTFULL
NEWS 12	APR 04	STN AnaVist $500 visualization usage credit offered
NEWS 13	APR 12	LINSPEC, learning database for INSPEC, reloaded and enhanced
NEWS 14	APR 12	Improved structure highlighting in FQHIT and QHIT display in MARPAT
NEWS 15	APR 12	Derwent World Patents Index to be reloaded and enhanced during second quarter; strategies may be affected
NEWS 16	MAY 10	CA/CAplus enhanced with 1900-1906 U.S. patent records
NEWS 17	MAY 11	KOREAPAT updates resume